

Public Relations Panel Feature of NAC Fall Program

**Association to Observe
25th Anniversary During
October Meet in Georgia**

WASHINGTON, D. C.—A panel discussion on public relations aspects of the pesticide industry will be a feature of the 25th anniversary meeting of the National Agricultural Chemicals Assn. to be held at the Bon Air Hotel, Augusta, Ga., Oct. 29-31. According to the tentative program just released by the NAC, conventioners will also hear addresses by Sen. Herman E. Talmadge, (D-Ga.), John L. Gillis, vice president, Monsanto Chemical Co., St. Louis, Mo., Frank S. Washburn, general manager, agricultural chemical division, American Cyanamid Co., New York, and John D. Conner, NAC counsel, Washington.

Participating in the panel discussion on public relations, according to the advance program, will be Charles S. Maddock, general counsel for Hercules Powder Co., Wilmington, Del., moderator; Dr. Cynthia Westcott, known as "The Plant Doctor," Glen Ridge, N.J.; Hon. Phillip Alampi, secretary of agriculture of New Jersey, (Turn to NAC, page 20)

USDA Recommends New Insecticide for Livestock Pest Control

WASHINGTON—The U.S. Department of Agriculture has announced that it now recommends the use of Bayer 21/199, commercially available as Co-ral, for control of certain livestock pests. Chemical name of the active ingredient is O-(3-chloro-4-methylumbelliferone) O, O-diethylphosphorothioate.

This material has been accepted for registration under pesticide regulation laws. It may be used with proper precautions on beef cattle for the control of cattle grubs, horn flies, lice, ticks, keds and screwworms, and on swine for the control of lice and screwworms.

The new USDA recommendation, issued as a supplement to Agriculture Handbook No. 120, adds Bayer 21/199 to several materials recommended for control of these pests.

Paraguay Exempts Fertilizers from Duties

ASUNCION, PARAGUAY — Exemption from payment of import duties on fertilizers and raw materials for domestic manufacture of fertilizers, has been granted by the Paraguayan government which has put into execution law No. 505 which makes these provisions.

Chemicals mentioned specifically in the text of the law include commercial potash, caustic soda, sodium ni-

R. P. Thomas Named Chairman of NPFI Midwest Research

WASHINGTON—Dr. R. P. Thomas, International Minerals & Chemical Corp., was elected chairman of the National Plant Food Institute's Midwest Research and Education Committee at a meeting at the Builders' Club in Chicago July 11. Zenas H. Beers, NPFI Midwest Regional Director, was named secretary of the group.

Dr. Thomas was also selected as the committee's representative on the National Steering Committee. Leo E. Orth, Sinclair Chemicals, Inc., was named alternate.

During the meeting, W. R. Allstetter, NPFI vice president, outlined the functions and organization of the various regional research committees and their work in developing programs adapted to the needs of their regions.

Committee members reviewed NPFI-sponsored fertilizer research projects at various Midwestern agri- (Turn to THOMAS, page 20)

Grasshoppers, Armyworm and Cotton Insects in Spotlight As Pest Season Moves Along

Insect activity was stepping up in many parts of the U.S. as July neared an end. Entomologists report the presence of bollworms, armyworms, European corn borers, boll weevils, grasshoppers, lygus bugs, and assorted aphids in various crops, but in no report was there indication that the situation was out of hand.

Weather, as usual, had its effect on the development of many agricultural pests, with a hot dry spell in the Southwest bearing down on crops there and cool, damp days lending a hand to the development of plant diseases in other parts of the country.

Here are reports from many points of the compass:

Armyworms Scattered Throughout Minnesota

ST. PAUL, MINN.—Reports from the west central and northwest districts indicate that low armyworm populations continue to be found in scattered fields with very few fields being treated. Occasional fields show 2 to 3 larvae per square foot—usually in lodged barley.

Rye seems to be the only grain in

which damage has been sustained. Armyworm has also been reported in rye from south central Minnesota. Most county agents in the infested areas have now received reports of armyworm from their local farmers—practically all such reports represent very light infestation. Close observation of grain fields for armyworm is still advisable.

Grasshopper observations in the southeast district indicate that grasshopper populations are low, usually less than one per square yard. Counts of up to 30 per square yard with 15 per square yard quite common in Faribault and Waseca counties and westward. Populations in Rock and Pipestone counties reported quite low. Infestations are very spotty. Predominant species in southern counties, the red-legged grasshopper (*Melanoplus femur rubrum*) in 1st to 3rd instar—some hatching still taking place.

Reports from west central and (Turn to INSECT NOTES, page 4)

Livestock Gain, Profits Rise From Fertilization Of Range Lands in West

FERTILIZATION of range lands in Western areas is one of the more important applications of fertilizers at this time of year.

Experiments in the fertilization of range lands in a dry year were made by W. E. Martin and L. J. Berry, extension specialists and W. A. Williams, assistant professor of agronomy, at the University of California. The results of 13 grazing tests on annual range using animal gains as a measure of result, revealed some interesting results.

Two approaches to range fertilization were made in the tests. No. 1 was stimulation of legumes by fertilization with phosphorus and sulphur; and No. 2, fertilization of grasses with nitrogen, using fertilizers containing phosphorus and sulfur where needed.

Sulfur fertilization of annual grass-

es and native clovers increased the average carrying capacity of the land approximately 50%, in grazing studies continued over a seven year period at the San Joaquin experimental range in Madera County, Cal. Phosphorus and sulfur fertilization of annual clover seedings on commercial ranches resulted in a two-or-three-fold increase in grazing capacity. These tests by the staff of the University of California agronomy department, demonstrated that rose, crimson, and sub-clover were better able to use phosphate and sulfur fertilizer than were native resident species. More feed of higher protein content was produced.

The experimenters point out, however, that legume fertilization has some limitations. First, it does not provide the early feed needed on many winter ranges; second, in many areas soils are well enough supplied with phosphorus and sulfur so that added fertilizers cause no growth increase; third, some seasons known as poor clover years, have temperature and rain fall conditions such that (Turn to RANGE LANDS, page 6)

New Fertilizer Firm Incorporated in Ohio

YOUNGSTOWN, OHIO—The Penn-Ohio Fertilizer Co., 512 Union National Bank Bldg., has been incorporated by Mrs. Louise McGinnis, Miss Helen Malick and Jacob Levy.

The new firm will deal in the manufacture and sale of chemical fertilizers and allied products. Location of the manufacturing plant has not been determined.

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For the Manufacturer:

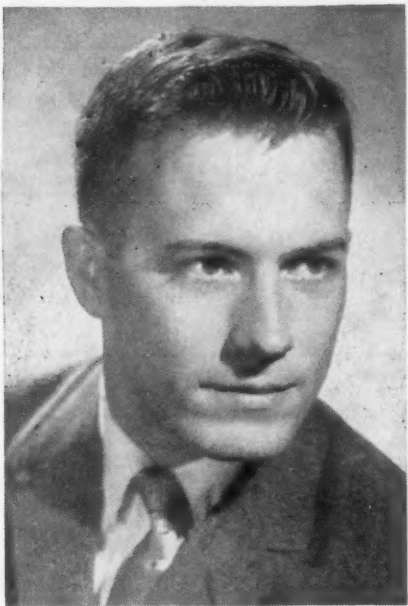
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Merle V. Adams

NPFI Names New Representative

WASHINGTON—Merle V. Adams, associate in farm crops, Rutgers University, New Brunswick, N.J., has been named Northeastern regional representative for the National Plant Food Institute, Dr. Russell Coleman, NPFI executive vice president has announced.

In his new position, which becomes effective August 11, Mr. Adams will be associated with Dr. Willard H. Garman, Northeastern regional director. His office will be located at New Brunswick, N.J.

Mr. Adams received his bachelor of science degree in agronomy at the University of Maine in 1954. He has completed courses for a Ph.D. at Rutgers and his doctorate will be granted him this fall or next June, upon completion of his thesis.

Kentucky Tonnage Down For First Five Months

LEXINGTON, KY.—Total tonnage of mixed fertilizers for the period of January through May, 1958 was less than that of the same period the previous year, according to a report just received from the Kentucky Agricultural Experiment Station, based on sales invoices supplied by manufacturers. However, figures for the month of May, 1958, showed a substantial increase over those for the same month of 1957.

Although the total tonnage was 389,420 tons for the first five months of 1958 as against 421,244 tons for the same period of the previous year, increases were noted in a number of grades of mixed fertilizers. The most popular grade, 5-10-15 went up from 91,085 to 91,317 tons, and 10-10-10 made a significant gain from 25,878 tons to 32,236 tons.

The grade of 5-12-8, also a good selling mixture, dropped from 68,179 tons to 52,314 tons in 1958.

Among the straight materials, ammonium nitrate continued its lead although tonnage dropped from 25,098 tons to 19,852 in 1958. Superphosphate likewise was reduced in shipments during the first 5 months this year. It dropped to 16,282 tons from 17,356 tons.

Muriate of potash was shipped in the amount of 5,465 in the five month period of 1958 as compared to 6,533 tons during the same period of last year.

Total sales of mixed fertilizer were 330,950 tons for 1958 as compared to 350,527 tons last year. In straight goods the weight of straight materials had dropped to 58,470 tons from last year's figure of 70,717 tons.

The month of May, 1958, showed appreciable gains over the same month of last year, the experiment station reports. Mixed fertilizers totaled 133,497 tons for 1958 as against May's total of 125,094 tons in 1957.

Straight goods were also up slightly over May of last year. The total

for May, this year, was 17,216 tons as compared to 17,186 in the same month of 1957.

The grand total of both mixed and straight goods came to 150,713 for May, 1958 against 142,280 the same month last year.

Gains were tallied in nearly all of the most used grades, although some went up by very slim margins. Among these was 4-12-8, which counted 3 tons more in May of this year over the 19,355 tons of last May. The biggest gain was registered by 10-10-10 which was shipped in the quantity of 16,134 tons for May this year and 10,687 for the same month last year.

In straight goods, ammonium nitrate, superphosphate, and muriate of potash all registered gains this year.

New Assignments for Survey Entomologists

SACRAMENTO, CAL.—Detection and survey activities by the bureau of entomology, California Department of Agriculture, have been increased with the redesignation of survey districts and the assigning of new entomologists.

R. W. Harper, bureau chief, reports that the state is now divided into five survey districts with an entomologist in each district. Formerly there were three districts.

In a recent cooperative insect pest report for the state, 24 species of insects were reported on. Cooperating in the project were agricultural commissioners, farm advisers, the California Fig Institute, Sunkist Growers and the state departments of public health and agriculture.

Regulatory projects in California included those relating to the beet leafhopper, Khapra beetle, Hall scale, citrus whitefly, cherry fruit fly, California red scale, olive scale, aphids, Spotted alfalfa aphid, pea aphid, mealy plum aphid, walnut aphid, woolly apple aphid, codling moth, tent caterpillar, painted lady butterfly larva, brown headed ash sawfly, pear slug, lead cable borer, alfalfa weevil, grasshoppers and the pear psylla.

MICHIGAN BULLETIN

EAST LANSING, MICH.—A revised edition of "Insect and Disease Control on Vegetables and Truck Crops" has been published by the Michigan State University Cooperative Extension Service. The bulletin contains the latest recommendations on the use of new-type insecticides and fungicides.

New Home Office for American Potash and Chemical Corporation

LOS ANGELES—American Potash & Chemical Corp. has moved its headquarters offices into a newly constructed building at 3000 West Sixth St., Los Angeles.

Designed by Welton-Becket & Associates, the new building was constructed by Carter Company on a lot adjacent to the company's previously occupied building. The new three-story building has a total of more than 40,000 square feet of office space.

Located in the new American Potash & Chemical Corp. building are all the company's executive offices including production, sales, administration, research, planning and development, defense and finance departments.

Leroy Donald Named to NPFI Southwest Post

WASHINGTON—Leroy Donald, Monsanto Chemical Co., was named chairman of the National Plant Food Institute's Southwest Research and Education Committee at a meeting in Galveston, Texas, July 17. The committee also selected Dr. Robert L. Beacher, NPFI Southwest Regional Director, as secretary.

Committee members met with Dr. Beacher and Dr. Russell Coleman, NPFI executive vice president, at a luncheon meeting in the Buccaneer Hotel.

The Institute's program of research and education in the Southwest was reviewed at the session, and the group approved the program projects as outlined by Dr. Beacher. Most of the discussion centered around NPFI's proposed county promotion program which is slated to get underway this fall in Louisiana, Arkansas and East Texas.

Committee members in attendance included A. B. Beasley, Spencer Chemical Co.; I. A. Irwin, Virginia-Carolina Chemical Corp.; Dr. N. D. Morgan, American Potash Institute; Floyd W. Prather, Central Texas Fertilizer Co., Inc.; R. W. Scanlan, Phillips Petroleum Co.; and G. A. Wakefield, Olin Mathieson Chemical Corp., who substitute for Dr. U. S. Jones.

The third meeting of the committee is scheduled for early December during the Arkansas Fertilizer Conference at Fayetteville.



Dr. Joseph E. Sedberry

Potash Institute Names Forest Fertility Agronomist

WASHINGTON—The American Potash Institute has appointed Dr. Joseph E. Sedberry, formerly agronomist at the Louisiana Agricultural Experiment Station and Monsanto Chemical Co., to work in the field of forest fertilization and to serve as agronomist for the two Carolinas. The announcement was made by Dr. H. B. Mann, president of the Institute and Dr. J. Fielding Reed, Southern manager, Atlanta.

The new appointee, a native of Louisiana, holds degrees in agronomy from Louisiana State University, including his doctorate. He was formerly employed by the Lion Oil Co. division of Monsanto Chemical Co., where he worked with official agricultural groups, farmers and fertilizer manufacturers and dealers, developing markets and working on fertility problems.

COTTON DEFOLIATION GUIDE

BERKELEY, CAL.—A revised University of California leaflet has been released pointing out the conditions that should be present before cotton defoliation is attempted. It also lists the commercial defoliants available and tells how to apply them. The U. C. leaflet, No. 64 (revised), titled "1958 Cotton Defoliation Guide."



James M. Miller



John S. Talbott



J. T. Marshall



Seaton A. Reed

Personnel Changes Announced by Federal Chemical Company

LOUISVILLE, KY.—Federal Chemical Co. has announced a number of promotions and personnel changes. Involved in the moves are James M. Miller, who has been appointed advertising manager; John S. Talbott, new assistant credit man-

ager; J. T. Marshall, production manager of the Louisville plant; and Seaton S. Reed, newly-appointed production manager of the Butler, Ind. plant.

Mr. Miller joined Federal in January, 1956. He attended Grinnell College in Iowa and was graduated from Northwestern University in 1951. Mr. Talbott is a graduate of the University of Kentucky and joined the com-

pany in December, 1955. Mr. Marshall was formerly production manager of the firm's Butler, Ind. plant, a position he held for six years. He joined Federal in 1937. He is succeeded in the Butler responsibilities by Mr. Reed who joined the company recently. He is a graduate of Northeastern University, and was formerly associated with Davison Chemical Co. and Baugh & Sons Co.

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University of California Receives Grants for More Research Studies

BERKELEY, CAL.—Ten research studies in the field of agricultural chemicals are underway at the University of California in part because of donations and grants made to the Division of Agricultural sciences during the month of May.

The total of nine of these donations is \$15.40, while the tenth, a grant of the United States Public Health Service, is in the amount of \$12,943. The purpose of this latter grant is to promote research work on the chemistry and mode of action of insecticides, a study underway at the Riverside campus of the University.

The second largest grant of \$5,000 was made by Merck and Co., Inc., for a study of the effect of gibberellin-like material on plants. The Food Machinery and Chemical Corp. has given \$3,000 for residues studies on Tordon. California Spray Chemical Corp. made a donation of \$2,750 for research on fertility and soil moisture utilization relationships.

Next in order of size was a gift of \$2,000 by the Velsicol Chemical Corp. for study of insecticides in soil; and \$1,200 was given by the H. J. Heinz Co., foundation for research on the interrelations of soil compaction, irrigation, and phytophthora root rot (as the first of two annual installments).

Grants of \$1,000 each were given by Shell Chemical Corp., for research on crop pest control with special emphasis on seed treatment and soil insect problems; again by Shell for another study on chemical control of nematodes; and by the Upjohn Co. for research on soil fungicides. The final gift of \$500 was also from Shell Chemical (a total of \$2,500 for this company) also for chemical control study on nematodes—the first being at the Davis campus and the second an associated study on the Riverside campus.



Gerd W. Kraemer

IMC Names New District Sales Executive

CHICAGO—International Minerals & Chemical Corp. has announced the promotion of Gerd W. Kraemer to district sales manager of its Phosphate Chemicals Div., with headquarters in Omaha, Neb.

Mr. Kraemer will be responsible for sales of triple superphosphate and other phosphate chemical products in a seven-state area including Nebraska, North and South Dakota, Minnesota, Missouri, Kansas and Colorado.

Before joining IMC as a sales representative in 1956, Mr. Kraemer was in farm management work for five years. A graduate of the University of Wisconsin with a B.A. degree in economics, he served in the U.S. Army Air Corps from 1941 to 1945.

Texas Fertilizer Sales Continue to Increase

LAMESA, TEXAS—The sale of fertilizer has steadily increased in the cotton-growing areas of West Texas, according to a report made to a meeting of the Plains Cotton Growers Assn.

Harvey Walker, agronomist at the Lubbock experiment station, told the group that sales has risen from a half million dollars a few years ago to \$5½ million in 1957. The largest portion of this went on irrigated cotton, although some is now being applied to maize and vegetables.

Another scientist, John Davis of the Plains Experiment Station at Halfway, Texas, explained that trials with magnesium showed great promise. He said many fertilizer experiments were being conducted, including several types in various amounts. The addition of magnesium seems to speed the maturity of the cotton, he said.

The association has been busy in

giving information to its members, according to a report. A total of 20,000 bulletins were sent, mailed, and included such subjects as marketing, types of cotton grown and the best methods of irrigation and insect control.

New Ammonia Firm Names Salesmen

LATHROP, CAL. — Eleven sales representatives have been appointed by the California Ammonia Co., presently building a new plant here, for completion about Nov. 15.

Named to represent the company are the following men: Harlan Deidrichsen of Arroyo Grande; Gunnar Sondendo of Hollister; Ken Nelson of Sacramento; Bob Hawkins of Redlands; Robert McKean of Bakersfield; Ted Pringle of Marysville; Cliff Warfield of San Jose; Carlo Simoni of Visalia; Ed Hughes of Fresno; Carl Spiva of Merced; and Weir Fettes of Stockton.

Little Damage from Rust Expected this Season

MINNEAPOLIS—No material rust damage will occur this year on wheat, oats and barley in Minnesota, North Dakota, South Dakota and Montana, according to Donald G. Fletcher, executive secretary of the Rust Prevention Assn. Relatively light aerial movement of cereal rust spores into the Upper Midwest from southern areas, large acreages seeded to grain varieties resistant to most prevalent races, and cool weather are responsible, he added.

Dangerous races of rust are known which can attack Selkirk wheat, the durumms, and all commercial oat varieties. The wide distribution last year of new oat crown rust races in southern and central U.S. made the potential threat to oats particularly serious, Mr. Fletcher said. Nature prevented serious rust losses to oats while research activities, including winter rust tests of wheat and oats on Puerto Rico, are being expanded.

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INSECT AND PLANT DISEASE NOTES

Continued from page 1

northwest districts indicate very variable populations; 1 to 27 per square yard reported from west central—very low population in northwest.

The percentage of plants showing infestation of European corn borer (eggs or larvae or both), southwest district, 34%, south central, 21%, west central, 16% and central, 26%. Dissection of infested plants reveal larvae from the south central district present as follows: 1st instar, 35%, 2nd instar, 20%, 3rd instar, 30% and 4th instar, 13%—5th instar—one specimen observed.

Corn borer population appeared to be much lighter than expected. Weather conditions have been unfavorable during much of the egg laying and hatching period. It is unlikely that 2nd generation borer could be a serious threat this season.

Plant bugs—3 to 25 per 10 sweeps in southeast and south central districts; 1 to 20 in southwest.

Pea aphids (*Macrosiphum pisi*) were counted heavily in alfalfa, 50 to 400 per 10 sweeps in southern Minnesota. Some fields show high counts of lady-bird beetle larvae which are predatory on aphids.

Onion maggots (*Hylemya antiqua*) have been reported serious in home gardens in Thief River Falls area. For beet webworm (*Loxostege sticticalis*)—some spraying has started in west Polk County. Webworm is present in all stages including moths, eggs and larvae up to 1 inch long. Most larvae about ¼ inches long.

Two-spotted mites (*Tetranychus telarius*) have been found to be severe on evergreens in scattered locations throughout Minnesota. Heavy aphid populations have been reported on various perennial and ornamental trees and shrubs.



Insect Activity Great In New Jersey

NEW BRUNSWICK, N.J.—Some very fresh codling moth entry was observed in Burlington County July 14. This is earlier than most second brood entry. Depending on the amount of first brood damage, second brood codling moth is an individual matter. Growers should first determine number of "dynamite" wormy drops, then be on lookout for first fresh entry. An important consideration now is the pesticide residue problem.

Mites are on the upswing. If growers are going to profitably control these pests, the next application will appropriate time for a miticide.

Surveyors from the New Jersey Department of Agriculture have established European apple sawfly to be present in Monmouth County and in the extreme northeast tip of Sussex County. This means that Bergen, Essex, Passaic, Sussex and the northern area of Monmouth County are infested.

European crucifer flea beetle adults are very numerous. Observations in from Cape May to Middlesex County show great numbers of the pest.

Moderate numbers of cabbage looper were present in Cape May County as small larvae. No great numbers of this pest have been reported yet in other areas.

Surveyors of the New Jersey Department of Agriculture report that in checking 25 silks per field, one field showed 2 corn earworm eggs; five fields, one egg; and one field, no eggs. Hence, egg laying is light but heavier than in the past two weeks. For worm-free corn, regular spray schedule is still needed.

New Jersey Department of Agriculture surveyors report increase in apparent damage of corn borer. How-

ever, no pupation has been observed and second brood moths are not yet noticeable.

Observations over the state show presence of cutworm moths. Trapping at Moorestown yielded 8 black cutworm moths for first time. Armyworm moths are present in considerable numbers as usual but present no threat at this time of year.

This year continues to be ideal for *Drosophila* populations. It has been damp, vine growth is rank and many fields have heavy weed growth. Spraying and cultivating have been difficult to do because fields have been water soaked.—Spencer H. Davis, Jr., Leland G. Merrill, Jr. and William E. Collins.

Cutworms Damage Fields, Illinois Report Says

URBANA, ILL.—Black cutworms have damaged a few widely scattered fields of late-planted corn. Black cutworms, when about 1½ inches long, are nearly mature and damage is about over. However, infestations, if discovered early when the worms are small and before damage is extensive, can be controlled with sprays.

Grasshopper infestations are still light and concentrated in field margins, fencerows, and ditch banks. Sprays of recommended materials will control the grasshopper while they are still in these localized spots. Occasional infestations have been observed in forage crop fields.

Populations of first generation corn borer are low throughout the state. Second-generation moth emergence is well under way in the East St. Louis vegetable-growing area. A few egg masses are being deposited in this area on sweet corn in pretassel to early silking stage. Corn borer development is usually two to three weeks earlier in this area than just northward.

Another generation of corn flea beetle is now appearing. Counts ranged from 1 to 4 per plant on sweet corn in the East St. Louis area this past week. Little can be done to control them profitably on field corn, but late sweet corn should be protected.—H. B. Petty.

Insects and Heat Harm Arizona Cotton

PHOENIX, ARIZ.—Weather continues with above normal temperatures. In some places cotton is shedding very badly due to lack of moisture and high temperatures. The Yuma County assistant county agent reports that Lygus nymphs are building up rapidly along with perforators and woolly worms. His counts range as follows: Wellton—10 to 50 Lygus; Roll—20 Lygus, few perforators and woolly worms; Yuma Valley—10 Lygus, 1 stink bug; Somerton—fields checked had been dusted and showed a 0 count; Gadsden—50 Lygus with nymphs predominate; Gila Valley—18 to 30 Lygus per 100 sweeps, few perforators in all fields; North Gila Valley—50 Lygus with one-half nymphs; Yuma-Mesa—10 to 33 Lygus, nymphs high, also perforators, loopers and stink bugs.

Greenlee County reports Lygus counts as well as fleahoppers are very low. Spotted alfalfa aphid is very high in some alfalfa fields.

Graham County reports bollworms and a few bollworm eggs are showing in some places. Leaf perforator counts are still high with a few stink bugs. Dusting very light at the present. Cotton insect field meetings were held July 22.

In Pinal County, Lygus counts are running 8 to 16. For the most part, counts were down, indicating good control. Looper damage and bollworm damage is evident in a few fields, but looper numbers were down from last week, except in spots.

Maricopa County's agent reports

no insect survey during the week. However, during the cotton insect meetings Lygus, fleahoppers, bollworms, leaf perforator, stink bugs, loopers and woolly worms were found. The Lygus bug seems to be building up in all areas. This is also true for the leaf perforator. Shedding of small bolls is building up and examination of these bolls shows that 25 to 50% have some type of insect injury.

All areas are continuing control but it seems that controls are not keeping ahead of the insects, as well as they should. All insecticides are doing a good job when applied properly and in large enough dosages. In some observations on checking cotton fields for insects, it was found that it takes about one hour to check 100 acres. This includes making at least 100 sweeps at each location, and examining 100 plants at each location.

It has been found in the past that the first to second week in August is the time of highest insect activity. That time is only a short time away. Be sure and keep a "bug eye" out for insect damage.—J. N. Roney.



Second Generation of Corn Borer Expected

MANHATTAN, KANSAS—First generation European corn borers are pupating so the moths that will lay eggs for the second generation can be expected in the fields in early August. The need for control of second generation European corn borer is based on egg masses found on plants. Finding 100 egg masses on 100 plants indicate treatment to prevent stalk breakage and ear dropping.

The fall armyworm that was responsible for cutting the shanks of ears last summer has not been found as a problem in corn fields this year.

The roadside spraying program for grasshopper control in western Kansas include the following acreages: 54,783 acres applied by aircraft, 63,588 acres applied by ground equipment, 3,133 acres of federal state highways applied by ground equipment, 6,765 railroad right of ways applied by air.

The rangeland spraying of 90,000 in Morton County is almost complete.

Weather Gives Boll Weevils "Field Day" In Some Areas of Southern Cotton States

MEMPHIS—The hot and dry weather that came to the Mid-South the middle of July was described by extension officials as being just right for cotton and other crops.

This optimistic picture, however, was changed slightly by the coming of scattered showers during the next to the last week in the month. Earlier, officials in Arkansas, Mississippi and Tennessee reported that land was drying out, cotton in most areas was fruiting heavily, and boll weevils were relatively scarce.

In Mississippi boll weevil infestations were reported as low so far, but bollworms and other insect numbers increased during the rainy period. As a whole, corn, soybeans and other crop prospects are unusually good, the extension service reports.

Several Mississippi counties reported trouble because of rain. In Pontotoc County, bollworms are becoming serious, with some counts reported as high as 24%. Farmers of Amite County have been unable to stay on a poisoning schedule because of rain, and "weevils and bollworms in cotton are having a field day." Bollworms were said to be building up fast in Lowndes County, which had

ONE SHOT SERVICE

WESLACO, TEXAS—Highlines, fences, trees, smokestacks and buildings aren't all the hazards crop dusters have to contend with, A. L. Cleave, a pilot, found out recently. Mr. Cleave filed charges against a farmer claiming that he was fired upon with a shotgun loaded with No. 4 shot while he was making a turn. Mr. Cleave charged malice. The plane was damaged only slightly but Mr. Cleave, a pilot for the Mercedes Dusting Service, refused to continue dusting in the area until highway patrolmen stood by to protect him.

The large yellow differential grasshoppers in north central Kansas can still be a critical problem by cutting the silks of corn.

Stable flies are a problem around unsprayed farmsteads. Spraying the shady resting areas will control stable flies better than insecticide applications on the animals. Dairy sprays plus repellants every day may be needed for protection of dairy animals from mosquitoes, stable flies and horse flies.—David L. Matthew and Dell E. Gates.

Aerial Spray Job to Begin in Wisconsin

OCONTO, WIS.—Thousands of acres of forest plantation in the Lakewood district of the Nicolet National forest in northern Oconto County are in danger through serious infestations of the Saratoga spittle bug, according to R. E. Hellund, district forest ranger.

Insect detection surveys made by the district some days ago have been appraised by the Insect Research Division Experiment Station, St. Paul, Minn. Their findings, based on the facts of the survey, reveal that 2,200 acres are in need of control. These are the areas where the insect has reached epidemic stage and immediate action is needed.

The only practical method to do a job of this size is by aerial spraying of insecticides, according to assistant ranger Arden Mikich and forestry aids John Klementz and Roger Johnson, who conducted the survey. They are now marking the plantations with flags and balloon locations to guide the pilots. During the actual spraying operation, Mr. Mikich and Mr. Johnson will observe the spray coverage while the third party serves as radio

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communications coordinator between the plane's base of operation and the observation crew.

The spraying operation was to begin during the latter part of July, depending upon the rate of development. Weather conditions permitting, the job should be completed within 3 days.

Texas Cotton Threatened By Boll Weevils

WACO, TEXAS—Both boll weevils and boll worms are threatening cotton in central Texas counties and rigid control measures should be used, according to Charlie Parencia, entomologist in charge of the Waco Cotton Insects Laboratory.

Mr. Parencia said boll weevil infestations were found in injurious levels in early planted fields. Boll worms were also damaging cotton that had not received recent treatment. Other insects found in medium to heavy infestations were fleahoppers, and in some fields the spider mites were working.

Mr. Parencia reminded cotton growers that treating the field at five-day intervals is necessary to control boll weevils and boll worms.

Orchard Diseases and Pests Hit in Massachusetts

AMHERST, MASS.—There is no change in the apple scab situation this week (July 22). If there is scab in the orchard, fruit will need protection during rainy periods. Apple powdery mildew is still active and spreading.

Peaches become more susceptible to brown rot as they grow larger and start to ripen. A regular program of spraying with recommended toxicants will prevent this disease.

Apple maggot flies are emerging slowly in cages but are active and easily found on unsprayed and poorly sprayed trees. Red banded leafroller moths are now active again and laying eggs for the second brood. Adult codling moths from first generation worms have appeared in cages. Apple growers are urged to watch closely for leafroller and maggot fly activity. Late sprays may be required this year on susceptible varieties.

Now is the time to control bud moth in orchards where this is a problem.

We are now between broods of corn borer. Egg laying and hatching by first brood is over. First brood borers are working in tassels, stalks and ears of early and second-early plantings. Egg laying for second brood borer is expected by Aug. 1.

Plantings that came into the silking stage about July 25th and later are likely to show an increase in corn earworm egg laying and worms. Cool weather will slow down the increase in numbers but a few days of high temperatures can change the situation fast.—E. H. Wheeler and C. J. Gilgut.

Corn Borer Situation in Iowa Under Control

AMES, IOWA — With continued cool weather and with only 8% of the corn borer larvae in northeast Iowa full grown or nearly so, it appears that there will be no second brood in the area. There will be a light second brood in northwest and southwest Iowa. The greatest potential second brood is in central and west central Iowa.

Our 1958 recommendation for second brood borer control gives the farmer two alternatives in timing the treatment: (1) He can count egg masses and treat any corn with granular or spray as soon as he finds 100 unhatched egg masses per 100 plants on a single day. (2) If many second brood moths will emerge in his area, he can profitably treat all late corn (where silks are green and tassels are shedding pollen) on Aug. 1.

Southern corn rootworms are $\frac{1}{2}$ to full grown in Washington County. There are larvae of the 11-spotted cucumber beetle. The beetles fly up

from the south in the spring and lay their eggs after corn is planted. Soil insecticides before or at planting give good control.

Northern corn rootworms are $\frac{3}{4}$ to full grown. No adults have been reported. Right now all you can do is to watch the corn (any year in the rotation) fall over.

Another case of Dutch elm disease has been confirmed in Scott County. This is the first case reported in 1958. The bark beetles which transmit the disease did their dirty work in April.

Japanese long-horned weevils were found at Council Bluffs for the first time, feeding on African violets. They are present in large numbers at Hamburg, where they have been for several years. East central Iowa usually has heavy infestations.

A few adult Japanese beetles were caught in traps in the Ft. Madison area in early July. Bagworms were sent in from Pella on juniper, and squash bugs are becoming abundant.—Harold Gunderson.

Bollworm Damage Is Expected in Tennessee

KNOXVILLE, TENN. — We are now in between generations of boll worms. Some square damage is now taking place. It is now believed that the next generation may be attracted to silking corn, thereby, causing lower infestations in cotton. There will be some damage to fruiting cotton regardless of how many move to the corn. They also will leave maturing corn. This year has earmarks of being a serious bollworm year.

Plant bugs are showing up in larger numbers and are causing considerable square shed. Control is needed in many fields to prevent further loss of the bottom crop.

Of spider mites, only one light infestation found so far this season in one treated field. Conditions are unfavorable for buildup at this time.

European corn borer was found to be infesting one cotton stalk in McNairy County.—R. P. Mullett.

Heavy Rains Fail to Stop Insects in Indiana

VINCENNES, IND.—Rainfall during July at Vincennes has been almost constant and very heavy. Of the first 22 days of July, rainfall has occurred on 15 of them and only three days since July 6 have passed without some rainfall.

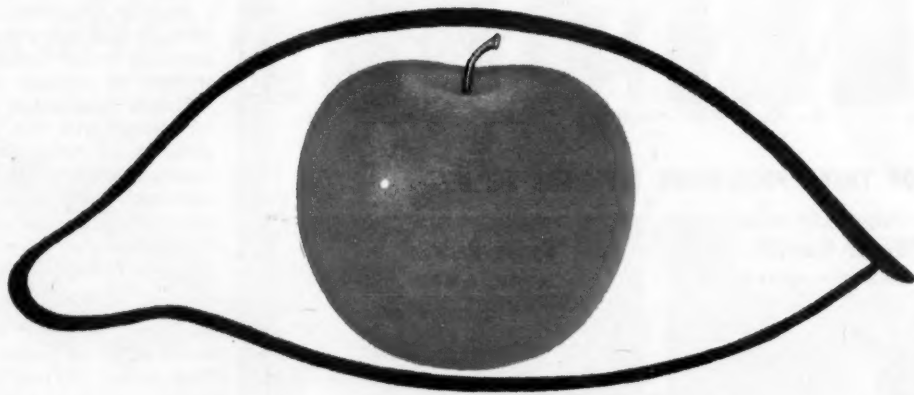
Rivers, creeks, and drainage ditches are full of water so that surface water cannot drain off of low lands. Many orchards are too wet to spray. Growers who have dusters are applying fungicides with their dusters for brown rot and scab on peaches and scab and sooty blotch on apples.

Total rainfall during the 7-day period ended July 22 was 3.49 in. Maximum temperatures ranged between 74 and 89° F. and minimum temperatures between 62 and 74° F.

Harvest of early peaches and apples is well underway in this area. Quality of both is very good.

Populations of European red mites (Turn to INSECT NOTES, page 8)

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Fertilization of Range Land In Western States Important For Off-Season Application

(Continued from Page 1)

poor legume growth is made regardless of fertilizer applications. The aim in applying nitrogen on grass was listed by the experimenters as to make more early winter feed; to increase total forage growth; and to decrease growth of summer weeds.

The most striking and consistent result of the entire series of range fertilizer plots and demonstrations, was the fact that supplemental ni-

trogen fertilizers stimulate early and continued through the winter and early spring growth of annual grasses, the experimenters report. These responses have occurred during the cold season when little growth would normally be expected. Nitrogen appears to be the key to early growth, but was effective only if adequate phosphorus and sulfur were present or were applied in the fertilizers used.

Three factors; moisture, tempera-

ture, and nutrient supply, govern the growth of range plants. Throughout California, rainfall usually comes during the winter months when temperatures are lowest. The bulk of the feed production comes in the spring when soil temperatures have increased and the moisture is still adequate. Warming of the soil permits the liberation of nitrogen from organic materials. This causes forage to grow in a great spring flush which slows as rains cease and the dry summer approaches.

The relationship of temperature, rainfall, and fertility to forage growth is easily detectable. Data taken in 1954 on soil that was deficient in both nitrogen and phosphorus showed that growth of unfertilized forage occurred only when temperatures were rising, rainfall decreasing, and moisture was still present. The yields decreased rapidly as spring rains ceased. Growth came early where both nitrogen and phosphorus were applied and total forage was greatly increased.

The influence of fertilizer on yield and composition of range forage was rather obvious. As shown in the charts accompanying this article, on the high phosphorus soils, there was no significant effect of phosphorus fertilizers when added alone or with nitrogen. On the same soils, the yield of forage was almost directly proportional to the rate of nitrogen applied. The major part of the forage from nitrogen came in the winter.

On the phosphorus deficient soils, phosphorus fertilizer alone did not increase total forage either in the winter or spring cutting. Native legumes responded slightly to added phosphorus but not enough was present to effect yields or quality appreciably. In the winter period, nitrogen was markedly effective only when applied with phosphorus. Responses were proportionate to the amount of nitrogen applied.

In the spring period, nitrogen alone did increase grass growth on these phosphorus deficient soils, but to a much lesser degree than where phosphorus was also added.

The percent of crude protein in forage was only slightly increased by fertilization. The more mature spring growth showed lower protein values than did the green winter growth. Protein content of the winter growth was increased by the application of nitrogen. Protein values of spring growth were not significantly effected by the application of nitrogen the previous fall.

The phosphorus content of the forage expressed as percent total phosphorus of the dried harvested material, was much lower on the deficient soils than on the soils with adequate phosphorus supply. The percent of phosphorus was increased by applications of fertilizer

phosphorus on the deficient soils but not on the high phosphorus soils. The addition of nitrogen had no significant effect upon the phosphorus content of the forage, the tests showed.

Meat production on range land fertilized adequately was also significant. Animal grazing tests on fertilized ranges were set up in 12 counties of California in the fall of 1956, the experimenters report. These were set up for the specific purpose of finding out whether or not fertilizers could be profitably used at those locations.

All factors, including the site selection with both highly productive and poor ranges, were used in order to get a fair cross section of range land and to accommodate sufficient animals to obtain reliable results. The stocking and grazing of experimental fields was as close to normal ranch operations as possible.

The results obtained from 10 grazing tests were significant. This was particularly true in view of fall and winter drouth which was a factor at all locations. Despite this situation, the carrying capacity doubled or tripled on treated fields.

Meat production per acre about trebled in most tests.

Striking carry over effects of previous fertilizer treatments at three locations were noted. These effects reduced costs obtained for 1956.

The average fertilizer cost of the extra beef per acre was 11.3¢. This includes data from two tests where spring drouth greatly reduced forage yields.

The authors remind that strict comparisons of these tests with other situations may not be completely valid since different ranches and fertilizer treatments were involved. However, the results are regarded as significant.

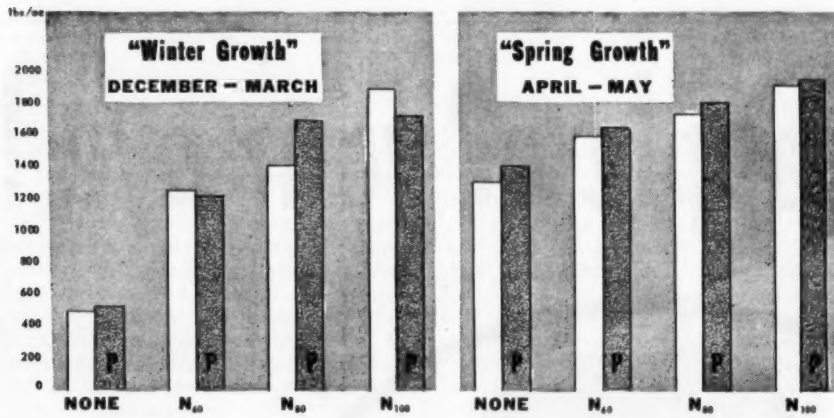
A four year comparison of the effectiveness of N and NP fertilizers on beef production presents a graphic picture of the increased values in meat production with fertilizers.

Over the four year period, the grazing days per acre were more than doubled in every case.

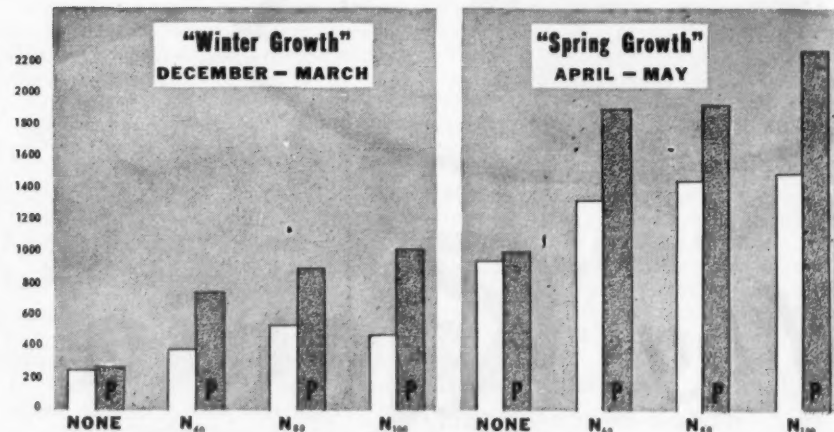
In the year 1953-54, the comparisons between the control plots and the best treatment, was 34 days vs. 76 days. In 1954-55, the comparison was 40 vs. 90 days. In 1955-56, the figures were 37 vs. 90; and in 1956-57, 34 vs. 79.

The amount of meat produced per acre is even more significant. Here the control figures were nearly doubled by the addition of fertilizer. In 1953-54, the control area produced 55.8 lb. of meat an acre. The fertilized area that year produced 158.6 lb., making an increase of 102.8 lb. an acre.

EFFECT OF FALL FERTILIZATION ON YIELDS OF ANNUAL RANGE ON THREE HIGH PHOSPHORUS SOILS



ON THREE PHOSPHORUS DEFICIENT SOILS



Pounds of Nitrogen Applied per Acre
P = 40 lbs P₂O₅/ac

EFFECT OF FERTILIZATION ON PROTEIN AND PHOSPHORUS CONTENT OF RANGE FORAGE								
	ON 3 HIGH PHOSPHORUS SOILS				ON 3 PHOSPHORUS DEFICIENT SOILS			
Fertilizer Treatment	% Crude Protein in		% Total P in		% Crude Protein in		% Total P in	
	Winter Growth	Spring Growth	Winter Growth	Spring Growth	Winter Growth	Spring Growth	Winter Growth	Spring Growth
Check	11.7%	8.0%	.348%	.290%	11.0%	6.6%	.135%	.150%
P ₄₀	12.3	9.2	.317	.286	11.6	6.5	.195	.194
N ₆₀	11.9	9.1	.344	.280	14.1	7.4	.151	.126
N ₆₀ P ₄₀	12.3	9.7	.307	.280	13.7	6.2	.245	.178
N ₈₀	12.4	9.5	.335	.272	14.5	7.8	.149	.131
N ₈₀ P ₄₀	12.7	8.7	.230	.265	14.0	6.3	.229	.175
N ₁₀₀	13.0	10.1	.345	.268	14.8	7.8	.138	.121
N ₁₀₀ P ₄₀	12.9	9.8	.335	.275	15.5	6.4	.225	.162

EFFECTS OF N AND NP FERTILIZERS—On high phosphorus soils, there was no significant effect of phosphorus fertilizers when added alone or with nitrogen, tests made by University of California researchers revealed. Phosphorus alone did not increase total forage on phosphorus deficient soils, the tests showed. During the winter period, nitrogen was markedly effective only when applied with phosphorus. Responses were proportionate to the amount of nitrogen applied. In the spring period, nitrogen alone did increase grass growth on these phosphorus deficient soils, but to a much lesser degree than where phosphorus was also added.

In the lower table, the effect of fertilization on protein and phosphorus content of range forage is shown. The percentage of crude protein was only slightly increased by fertilization, and the more mature spring growth showed lower protein values than did the green winter growth. Protein content of the winter growth was increased slightly by the application of nitrogen, however. The phosphorus content was much lower on the deficient soils than on those with adequate phosphorus supply. The percentage of phosphorus was increased by applications of fertilizer phosphorus on the deficient soils.

Use of Single Materials Up Oregon's Fertilizer Tonnage During Period of 1952-1957

By Douglas Y. Higa*
Oregon State College

TREMENDOUS increases in agricultural production throughout the U.S. have been brought about through improved technology and the application of this knowledge for greater efficiency in the production of crops.

In keeping with this trend, consumption of fertilizers in Oregon has increased correspondingly, from 116,508 tons in 1952, to 183,717 tons in 1957. This is an increase in index of 100 in 1952 to 158 in 1957. The index indicates that large increases oc-

curred in 1954, 1955 and 1956 but levelled off in 1957.

The major portion of the total tonnage consisted of simple fertilizers, the percentages ranging from 79.5% to 84.9% during the five years studied, while the mixed fertilizers made up the remaining 15.1% to 20.5%. The greatest percent of simples consumed in any one year occurred in 1955 when 84.9% of the total tonnage were of simple fertilizers. It dropped slightly to 84.2% in 1956 but regained a little in 1957 to 84.4%. Over the period of years studied, both the

*Research paper submitted to Oregon State College as part of requirement for degree of Master of Agriculture, June, 1958.

simples and the mixes have increased in tonnage consumed but the simples increased to a greater degree as shown by the index. Substantial increases of both simple and mixed fertilizer consumption occurred in 1956 but levelled off in 1957.

In comparing these trends of fertilizer consumption with the continental United States, there is seen a relatively stable total fertilizer consumption of 22,052,197 tons in 1952 to 21,794,152 tons in 1956. The total tonnage increased slightly in 1954, 22,362,039 tons and held constant in 1955, 22,283,975 tons, but dropped slightly below the 1952 total in 1956. The major portion of the total tonnages, unlike Oregon, consisted of mixed fertilizers which made up from 67.2% to 68.4% of the total tonnages while the simples made up the remaining 31.6% to 33.1%.

While the consumption of both the simples and the mixes in the United States has been constant, the simples have increased steadily in Oregon while the mixes, though dropping somewhat in 1954 and 1955, have surpassed the 1952 level in the past two years. The levelling off of both the simples and the mixes in 1957 may be a commencement of a decline for 1958 similar to the national trend since 1954.

The reason for Oregon's greater consumption of simples over mixes may be due to a number of reasons. Growers throughout the state have often obtained tremendous response from nitrogen applications, and the increasing use of simple nitrogen materials partly accounts for the high simple materials tonnage. Some of the simple materials are also available in concentrated forms which the Oregon farmer finds economical to use because of the reduced transportation costs.

The nitrogen material consumed in the largest quantity in 1952 in Oregon, was ammonium sulfate followed by ammonium nitrate and ammonium phosphate-sulfate. Other nitrogen materials consumed in lesser quantities were aqua ammonia, ammonium phosphate 11-48, calcium nitrate, calcium cyanamide, ammoniated superphosphate and sodium nitrate.

In 1957, the relative positions changed a little over 1952. Ammonium sulfate still maintained its position at the top but was followed by aqua ammonia, ammonium nitrate, and ammonium phosphate-sulfate. The other nitrogen materials, although still consumed in much smaller quantities, showed a general increased level of consumption relative to the total fertilizer tonnage.

As to relative increase or decrease of the individual simple nitrogen material, aqua ammonia and anhydrous ammonia show the greatest increase in 1957 over 1952 consumption in Oregon. Sodium nitrate shows unusually high indexes for 1955 and 1956; however, this may be accounted for on account of the low consumption in 1952 (15 tons or 0.02% of the total simples tonnage). The other nitrogen materials have also increased but not as rapidly. Consumption of urea and other liquid nitrogen fertilizers which have only been reported individually since 1954 and 1956, respectively, have greatly increased. Only sodium nitrate shows a drop in consumption below the 1952 level in 1957.

As compared with this trend in Oregon, the United States consumed ammonium nitrate in largest quantity in 1952, followed by sodium nitrate, ammonium sulfate, ammonium phosphate-sulfate, and anhydrous ammonia. Other nitrogen materials consumed in lesser quantities were calcium nitrate, calcium cyanamide, aqua ammonia, ammonium phosphate 11-48, and ammoniated superphosphate.

The largest source of N fertilizer in 1952 was ammonium sulfate followed by ammonium nitrate, ammonium phosphate-sulfate, aqua ammonia,

calcium nitrate, ammonium phosphate 11-48, and calcium cyanamide. Ammoniated superphosphate and sodium nitrate provided only a small quantity of N, about 2 tons each.

In 1957, the greatest quantities of N were still made available by ammonium sulfate and ammonium nitrate but newer materials such as anhydrous ammonia and aqua ammonia became more important and followed as close seconds. Others that followed in order of consumption were other liquid nitrogen fertilizers, ammonium phosphate-sulfate, urea, calcium nitrate, ammonium phosphate 11-48, calcium cyanamide, ammoniated superphosphate and sodium nitrate.

The phosphate material consumed in the greatest quantity in Oregon in 1952, was normal superphosphate (20% of the total simple fertilizer tonnage) followed by ammonium phosphate-sulfate (10%), ammonium phosphate 11-48 (2%), treble superphosphate (2%), and ammoniated superphosphate (0.08%). In 1954, the ammonium phosphate-sulfate replaced the normal superphosphate, the others following in the same order as above. The percentages changed to 14% for ammonium phos-

phate-sulfate, 10% for normal superphosphate, 3% for ammonium phosphate 11-48, 2% for treble superphosphate and 0.02% for ammoniated superphosphate. This order was maintained for the remaining years up to 1957 although the percentages varied.

P₂O₅ tonnage provided by the phosphate materials in Oregon is as follows: In 1952, the normal superphosphate was the major source of P₂O₅ followed by ammonium phosphate-sulfate, ammonium phosphate 11-48, treble superphosphate, and ammoniated superphosphate. But in 1954, ammonium phosphate-sulfate replaced the normal superphosphate as the major source. The total tonnages of P₂O₅ show a steady increase of 7,271 tons of P₂O₅ in 1952 to 9,431 tons in 1956, an increase of 16%, but the tonnage decreased in 1957 to 7,822 tons to near the 1952 level.

Potassium chloride and potassium sulfate were the only simple potash materials consumed in Oregon in significant quantities. Potassium chloride constituted almost all of the potash material tonnage throughout the five years studied. In 1952, 840 tons of potassium chloride, 0.91% of the total simple fertilizer tonnage, were consumed while only 73 tons or 0.08% of the total simple fertilizer

tonnage were consumed as potassium sulfate. In 1957, potassium chloride increased to 1,564 tons or 1.01%, while potassium sulfate increased to 98 tons or 0.16% of the total simple fertilizer tonnage.

The index indicates that potassium chloride increased steadily from an index of 100 in 1952 to 186 in 1957. Potassium sulfate, on the other hand, fluctuated from year to year ending with an index of 110 in 1957.

The total mixes consumed in Oregon constituted, in general, about one fifth of the total fertilizer tonnage from 1952 to 1957.

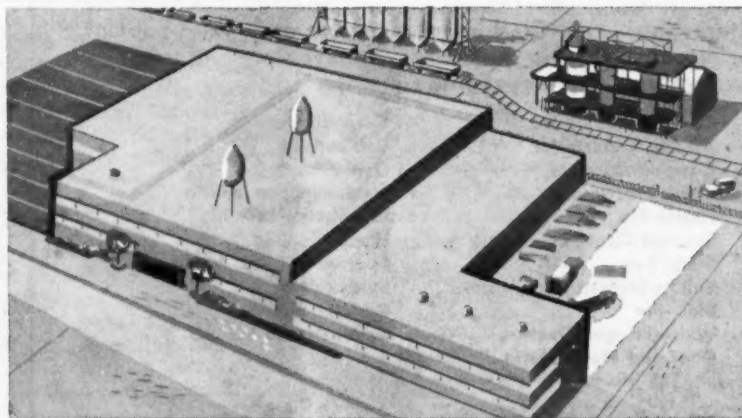
Consumption trends of the five major grades consumed in Oregon from 1952 to 1957 show that 10-16-8 was consumed in the greatest quantity. It amounted to 4,999 tons or 20.90% of the mixed fertilizer tonnage in 1952. Consumption remained greatest during most of the remaining years but dropped slightly in tonnage to 4,591 tons (15.99%) in 1957.

Consumption of 6-10-4 has also been consistently high ranging from 11.53% to 14.03% of the total mixed fertilizer tonnage in the five years studied. The index indicates that its

(Turn to OREGON, page 23)

SOMETHING NEW...

has been added for Western Agriculture

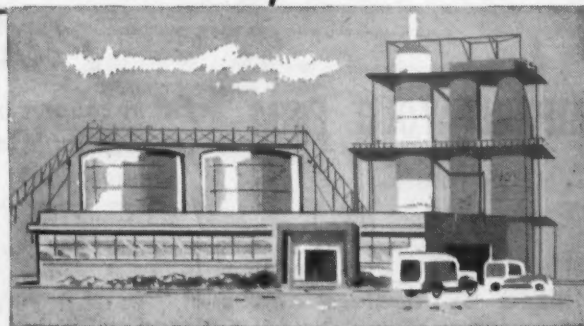


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Chemical Brush Killers Best for Control on Power Rights-of-Way

PORTLAND, ORE.—Chemical brush killers offer the most economical and effective method for control of brush on power and telephone rights-of-way, according to Arthur F. Wetsch, general maintenance engineer for the Bonneville Power Administration here. In a paper presented at the summer meeting of the American Society of Agricultural Engineers, Mr. Wetsch reported that the Bonneville Power Administration has applied herbicidal sprays to some 3,000 miles of right-of-way in the past five years.

"As a result of selective spraying of unwanted species of brush with selective herbicides, the treated rights-of-way are now for the most part covered with low-growing native vegetation," the engineer said.

He described three basic control methods that have produced the best results: (a) cutting, disposal, and

stump treatment, (b) basal treatment, and (c) foliage spray treatment.

The first two methods are used in restricted areas, where there is danger of drift, and on species resistant to foliage sprays. The foliage sprays are used on susceptible species including alder, willow, hazel, and cottonwood.

"In determining the method of control, such factors as soil erosion, adjoining property, wildlife, installed facilities, water supplies, fire and safety hazards, width of right-of-way, and public relations must be taken into account," Mr. Wetsch said.

Helicopter spraying is ideal for applying a foliage spray because of uniformity of coverage, speed and low cost, but its use is limited because of drift, Mr. Wetsch said. For ground application of foliage sprays, wind machines can provide the widest range of control at the lowest unit cost.

Mr. Wetsch recommended a normal respray cycle of five years to keep rights-of-way brush under control.

Yellow Dwarf Disease Appears in Oregon

SALEM, ORE.—Yellow Dwarf cereal virus disease, the 1957 scourge of Marion County, Ore., grain growers, is back again, reports Hollis Ottoway, county extension agent.

Winter oats, planted in mid-winter, have turned red and spring barley is yellowed. The big threat, however, is to barley, especially in cool weather.

Cool weather contributes to a large aphid population, carriers of this virus. Since aphids migrate rapidly, their control is thought to be not economically feasible. The disease over-winters in many of the roadside and fence row grasses, where damage is scarcely visible and, here again, control is not practical.

Mr. Ottoway says plots have been established locally in an effort to find a control. While there are fewer aphids in the control plots than in the rest of the field, these plots do show signs of the disease. The actual value of the plots will not be determined until later in the season.

INSECT NOTES

(Continued from page 5)

have built up rapidly during the past 10 days in spite of the rains. Mottling of apple leaves is occurring where growers are not maintaining rigid control measures. Two-spotted spider mites have also increased in large enough numbers to warrant control measures in certain orchards, although the European red mite continues to be the predominant species in the area.

Mite populations in some of the peach orchards are heavy enough to warrant control measures on late peaches.

First brood codling moth adults are still emerging. Bait trap captures of adults increased slightly on July 21. Second-brood entries are very light to date in commercial orchards.

Bait trap captures of Oriental fruit moth adults increased between July 18 and 21, indicating that second brood adults were emerging and that the period is at hand to spray for third-brood worms.—D. W. Hamilton.

G. F. Coope Retires From PCA; Succeeded By F. O. Davis

WASHINGTON, D.C. — G. F. Coope, president of Potash Company of America for the past 21 years, will retire on August 1, 1958, the company has announced. He is also retiring from his position as president of Potash Company of America, Ltd., the wholly-owned subsidiary of PCA at Saskatoon, Saskatchewan, Canada.

Mr. Coope, who came with Potash Company of America in October, 1936, will remain on the board of directors and the executive committee of the company. He has also been retained as a consultant in both places.

Mr. Coope will be succeeded by F. O. Davis, who has been executive vice president and treasurer of the firm. In addition to heading PCA, he will also become president of Potash Company of America, Ltd., and his former post of managing director of the Canadian subsidiary will be eliminated.

The new president came to PCA in January, 1936, as comptroller of the firm and has held successively the posts of treasurer and executive vice president as well as being a member of the board of directors and of the executive committee.

The retiring president came with PCA in October, 1936. Under his leadership, the company has seen a steady growth and its productive capacity has increased fourteen-fold. The potash venture in Canada, scheduled to begin production late this year, was conceived and developed during the last six years of his presidency. Mr. Coope will remain on the company's board of directors and the executive committee. He has also been retained as a consultant in both places.

William H. Bartlett has been appointed treasurer of the company to succeed Mr. Davis in this position. Mr. Bartlett was formerly comptroller. He joined the firm in 1943.

NEW LABORATORY

MORRIS, MINN. — Ground-breaking ceremonies for the new North Central Soil and Water Research Laboratory were held July 27. The laboratory is being set up by the Agricultural Research Service of the U.S. Department of Agriculture and will be located near the University of Minnesota's West Central School and Experiment Station. Research at the Laboratory will be conducted on conservation and use of soil moisture and development and improvement of systems for erosion and runoff control and conservation farming.

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BUG OF THE WEEK

a dealer's manual of insect pests



Here it is! The second edition of Croplife's Bug of the Week in 8½ x 11" booklet form. It's made up from reprints of the series appearing in Croplife during the past several months. The booklet includes 32 insect pests pictured and described—and all are in addition to the 21 which appeared in the original Bug of the Week booklet issued in 1954.



ORDER FOR YOURSELF, YOUR CUSTOMERS

You'll find many uses for this interesting, factual booklet. It's ideal for use by salesmen, dealers—and their customers.

Clad in an attractive cover, the booklet is packed with accurate information about these insects:

European Corn Borer
Khapra Beetle
Red Flour Beetle
Onion Thrips
Pepper Weevil
Rapid Plant Bug
Rose Chafer
Two-Spotted Mite
Cabbage Aphid
Rose Leaf Beetle
Potato Leafhopper

Cotton Fleahopper
Alfalfa Caterpillar
Cowpea Curculio
Corn Rootworm
House Fly
Spotted Cucumber Beetle
Stink Bug
Yellow-Striped Armyworm
Blow-Fly
White-Fringed Beetle
Confused Flour Beetle

Corn Earworm
Leafhopper
Gypsy Moth
Mexican Bean Beetle
Strawberry Weevil
Harlequin Bug
Spotted Alfalfa Aphid
Spider Mite
Cadmite Beetle
Sweet Potato Weevil



SINGLE COPY PRICE: 50 CENTS

Reduced rates quoted on quantity orders.

Clip coupon below



IMPRINT YOUR FIRM NAME

The back cover has been left blank so it can be utilized by dealers and others for promotional purposes. Company name or your advertising message can be imprinted, making the booklet a valuable sales piece. Rates for imprinting on request. Give full details.

Fill in coupon below and mail with remittance to: Reprint Department, Croplife, Box 67, Minneapolis 1, Minnesota.

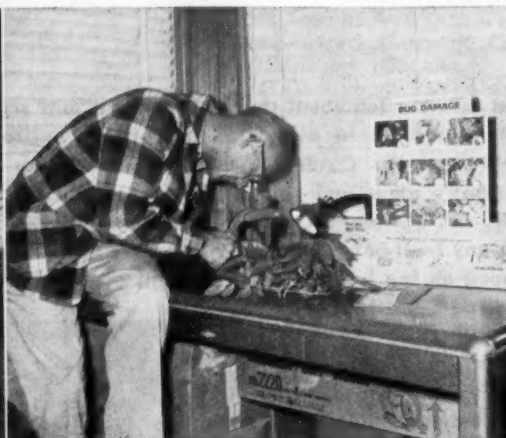
Name
Address
City Zone State

Check Type of Business

- ☐ Pesticide Formulator
☐ Fertilizer Mixer
☐ Dealer

If interested in purchasing supply with your imprint, please write copy for back page, and indicate number you would want. Price will be submitted by return mail. Copy for imprint (use separate sheet if necessary):

Quantity desired:



CALIFORNIA BUSINESS—An aerial view of the Moyer Chemical Company's plant at San Jose, Cal., is shown at the left. Three warehouses are in the background and two office buildings can be seen near the highway. Plant life

is watched closely at the company's laboratory. In the center Howard Morse, vice president, is at the microscope. George Pierce, president (right), is shown in one of the warehouses in which bagged fertilizer is stored.

California Formulator-Retailer Strives to Fill Specialist Role

"We function like a drug store." That's the way George Pierce, president of the Moyer Chemical Co., San Jose, Cal., described his firm's work in the field of agricultural insecticides and fungicides.

Moyer is 12 years old, having been founded in 1946 by Dick Moyer and Jack Bennett, two former employees of San Jose Spray Co. The Moyer firm today turns out about 200 insecticides and fungicides under its brand name.

Originally, the company's principal aim was manufacturing insecticides for the deciduous orchards in northern California. Its work has expanded into formulating chemicals for a variety of farm crops but the firm still emphasizes the improvement and protection of orchards.

An office entomologist determines what a field or orchard requires by analyzing plant life taken from the plot and by personally visiting the area. He also suggests the chemical to use, the concentration and the proper methods of application. Ten specialists are available at Moyer and a laboratory has also been set up using modern chemical, electrical and

microscopic equipment to insure effective application of the company's products. Mr. Pierce describes this operation as "joining the fields of entomology and chemistry at the grower level."

The plant consists of three warehouses, a laboratory and two office buildings. The largest of the warehouses, completed five years ago, is used for storage while the other two house manufacturing facilities along with storage areas. These buildings are constructed of concrete slab floors and corrugated metal walls and ceilings and contain 16,000 sq. ft. of floor space. Production work takes up about 4,000 sq. ft. of space. Concrete loading docks have been built alongside each building for the trucks used by the company. About 30 people are employed by Moyer with 10 engaged in actual manufacturing work.

The laboratory is located in a small structure across the road from the warehouses and to the rear of the office building. One full time laboratory technician is employed to handle the necessary tests. Dr. Joseph Deck, head of the chemistry depart-

ment of the University of Santa Clara, is the laboratory adviser to the company and is available full-time during the summer months.

In addition to working with the production of chemicals for particular problems, the laboratory also conducts "custom residue" work.

The laboratory also conducts its own research work on chemicals and some research work for other firms which produce insecticides to secure data on new products in order to establish safe residue standards.

Mr. Moyer sold his interest in the company several years ago, and Mr. Pierce, Howard Morse and Gertrude Britton joined Mr. Bennett in the firm. In 1956, Mr. Pierce became president, Mr. Morse vice president, Mr. Bennett treasurer, and Miss Britton secretary. In addition to his duties as treasurer, Mr. Bennett, a chemical engineer, is responsible for the development of production facilities and the chemical work carried on at the plant.

Distribution is carried on in an area from San Luis Obispo to Lake County with outlets also in the San Joaquin and Sacramento Valleys. A branch office in Watsonville has been in existence for four years. Another branch was set up recently in Ukiah.

The company also handles Best fertilizer; a fungicide made by Union

Carbide Chemical Co. and a miticide produced by Rohm & Haas.

The Moyer chemicals are sold as dust, wettable powders and emulsifiable concentrates. They are packaged with the dust in 50-lb. bags, powders in 3-, 4- and 5-lb. bags and emulsifiable concentrates in 1-, 5- and 30-gal. drums.

Moyer has based its operation on the claim that every dollar invested in insecticides by the farmer should bring a return of from \$2-5 in improved crops.

Chemical Safety Meeting Set for Fall Date

WASHINGTON — A chemical industry safety workshop will be held Sept. 25 at the Shamrock Hilton in Houston, Texas, sponsored by the Manufacturing Chemists Assn. in cooperation with the Texas Chemical Council.

The workshop will feature audience-panel discussion on various matters pertaining to the safe production, handling and transportation of chemicals and chemical products. Participating will be specialists from the MCA's General Safety Committee.

The workshop, second of its particular kind, is part of a continuing program formulated by the MCA. A similar workshop was held in Philadelphia during 1957.



WORD ON A HILLSIDE—The word "Best," demonstrating a new formulation of Best Fertilizers' pelleted garden and lawn fertilizer, appears on this hillside just north of Vallejo, Cal., on Highway 50. The demonstration is being carried on other hillsides throughout northern California. The word is entirely the result of fertilizing only the area in which the letters appear. An 11-8-4 formulation, the pellets include an addition of 23% soil conditioner, plus trace elements.



SHOP TALK OVER THE COUNTER

By Emmet J. Hoffman
CropLife Marketing Editor

"Use credit for facilitating your sales program and building business," dealers were told recently by Arthur H. Kantner, agricultural economist at the Federal Reserve Bank of Atlanta.

"Credit should be extended only if it can be justified and if it performs a needed service to your customers," Mr. Kantner said. To help make an appraisal of whether credit is justified and useful, these credit principles were suggested as guides:

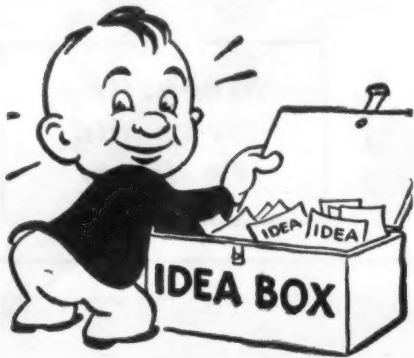
First, the borrower must be worthy as a credit risk. This seems obvious but too often creditors substitute collateral for experience or neglect to guide and supervise their more inexperienced debtors.

Second, the borrower must have the capacity to repay the loan. High indebtedness signifies low repayment capacity.

Third, credit should help the borrower make financial progress. The credit policy should be flexible enough so that the borrower with economic resources sufficient for development and the capacity of local

management can get money even though his equity is low.

Finally, the borrower should accept some risk in the credit transaction. Creditors should seek a margin of safety through subordinate, or secondary or collateral security. They should seek it to protect the borrower's business from excessive debt or loose credit practices, thus safeguarding the loan.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 7051—Tramrail Tractor

A new motor-powered tractor for use on overhead tramrail materials handling systems has been developed by the Cleveland Tramrail Division of the Cleveland Crane & Engineering Co. The unit is driven by two 5-in. diameter steel rollers under spring pressure against the bottom of the track. The tractor will develop a drawbar pull of 300 lb. Check No. 7051 on the coupon and mail it to secure details.

No. 7052—Pneumatic Vibrator

Details on a patented one-piece bin and hopper pneumatic vibrator have been announced by the National Air Vibrator Co. The manufacturer states that the unit uses body assembly bolts, has no housing springs and the pistons are not grooved to collect scale. Check No. 7052 on the coupon and mail it to secure details.

No. 6774—Fertilizer Spreader Body

The Baughman Manufacturing Co.'s "K-5" lime and fertilizer spreader body now features a lubrication-impregnated drag chain discharge designed to resist corrosion and virtu-

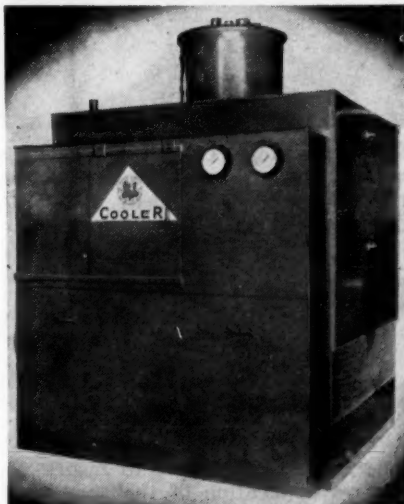
ally eliminate "freezing" of the body's automatic discharge system. The firm employs a special process to saturate the heavy 40,000-lb. (total strength) test malleable block chain discharge with a permanent lubricating agent. Check No. 6774 on the coupon and mail it to Croplife to secure full details.

No. 6772—Soil Fumigant Booklet

A new booklet entitled "Pestmaster Soil Fumigant-1 for Control of Imported Fire Ants and Cut-Ants" is available from the Michigan Chemical Corp. Directions are given for the use of the "Pestmaster" product for the control of imported fire ants. Details of the damage being caused to health, wild game and the over-all economy by the ants are explained. Check No. 6772 on the coupon and mail it to Croplife. Please print or type name and address.

No. 6775—Liquid Fertilizer Cooler

A new member of the Barnard & Leas Chemical Manufacturing Co.'s plants division production line is its new liquid fertilizer cooler. This field-tested unit is designed for plants to produce 8-24-0, 7-21-0, 11-22-0 and other analyses of "hot" fluid fertiliz-



ers. This new patented cooler will maintain a reaction temperature, dependent on ambient conditions, of 220° F. at 160° F. (batch temperature) while using recycle hook-up. Flow rates as high as 200 gallons per minute have been attained. The cooler is factory assembled, enclosed in a weather-proof housing, pre-piped and ready for mounting on foundation. Check No. 6775 on the coupon and mail it to secure details.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 7043—Bulk Storage Brochure

A new descriptive brochure entitled "Economical Bulk Storage With Steel" has been prepared by the Sapulpa Tank Co. The two-color brochure has installation pictures and factual data pertaining to suggested tank sizes for various storage capacities. Check No. 7043 on the coupon and mail it to this publication.

No. 7075—Research Chemicals

A 42-page booklet entitled, "Look-in' for Somethin'?" contains a list of research chemicals from the Dow Chemical Co. A wide variety of materials—currently available in limited quantities—are listed. Check No. 7075 on the coupon and mail it to secure the booklet.

No. 6767—Publication

Monsanto Chemical Co.'s line of agricultural chemicals, including fertilizer materials, feed supplements, herbicides and insecticides, is described in detail in a special agricultural chemicals issue of Monsanto International, a 36-page publication for overseas distribution. Published in French, Spanish and English editions,

the special issue details the properties of each of Monsanto's agricultural chemicals and describes how they are used in formulations. A guide to each product's use and the type of equipment necessary for application are provided for the grower. To receive a copy check No. 6767 and mail the coupon.

No. 6771—Grain Protectant

A new protectant for corn, wheat and other grains in storage has been developed by the Miller Chemical & Fertilizer Corp. Malathion in a dust or spray is used in the product to protect grains against insects. The dust is formulated on a wheat flour base and the spray concentrate can be mixed with water. The liquid spray can also be used as a residual treatment in grain bins, on walls and other places. Check No. 6771 on the coupon and mail it to secure details.

No. 6779—Source Book

A source book designed to stimulate new independent research efforts by chemists in expanding the potential uses for calcium cyanamide has been published by the manufacturer's chemicals department, American Cyanamid Co. The product, aside from its original use in fertilizers, has application in insecticides and in other industries. Check No. 6779 on the coupon and mail it to secure details.

No. 6773—Technical Data Sheet

Henry Bower Chemical Manufacturing Co. has developed a new copper compound trademarked "Dy-Q-Plex-1." Preliminary technical data is contained in a report available to agricultural chemical manufacturers and formulators. Secure the report by checking No. 6773 on the coupon and mailing it to Croplife.

No. 7081—Grain, Seed Treater

A new probe type unit operating on compressed air for treating of grain and seed in the bag on farms has been announced by the OK Manufacturing Co. Called the "In-the-Bag" treater, the unit is recommended for wheat, barley, oats, legumes and other seeds and grains which may be treated with dry chemicals. Check No. 7081 on the coupon and mail it to this publication for details.

No. 6764—Soil Conditioning Agent

A new type soil conditioning agent has been developed by the Commonwealth Engineering Co. The agent is designed for use by manufacturers of commercial soil additives and is said to adjust to the individual needs of specific soils. Secure details by checking No. 6764 on the coupon and mailing it to Croplife.

No. 6766—Movie About Gypsum

A sound slide film, "The Uses of Gypsum in Agriculture," is available from the United States Gypsum Co. for loan to county agents, vo-ag teachers and farm groups. The film describes the eight major uses for the firm's agricultural gypsum, which, according to the company, improves drainage of wet soils, clears muddy waters, breaks up plowpans and compacted soils, corrects irrigation waters, supplies neutral soluble calcium, conserves nitrogen in manure, supplies sulfate sulphur and stimulates soil micro-organisms. For more information check No. 6766 and return the card.

No. 6765—Irrigation Drip Tank

Fabricated Metals, Inc., has published new literature describing its No. 4301, 500-gal. irrigation drip

Send me information on the items marked:

- | | |
|--|--|
| <input type="checkbox"/> No. 6764—Conditioning Agent | <input type="checkbox"/> No. 6774—Fertilizer Body |
| <input type="checkbox"/> No. 6765—Tank | <input type="checkbox"/> No. 6775—Liquid Cooler |
| <input type="checkbox"/> No. 6766—Movie | <input type="checkbox"/> No. 6779—Source Book |
| <input type="checkbox"/> No. 6767—Publication | <input type="checkbox"/> No. 7043—Storage Brochure |
| <input type="checkbox"/> No. 6768—Lining Material | <input type="checkbox"/> No. 7050—Trigger Unit |
| <input type="checkbox"/> No. 6769—Pellet Booklet | <input type="checkbox"/> No. 7051—Tramrail Tractor |
| <input type="checkbox"/> No. 6770—Catalog | <input type="checkbox"/> No. 7052—Pneumatic Vibrator |
| <input type="checkbox"/> No. 6771—Grain Protectant | <input type="checkbox"/> No. 7068—Sowing Head |
| <input type="checkbox"/> No. 6772—Soil Booklet | <input type="checkbox"/> No. 7075—Research Chemicals |
| <input type="checkbox"/> No. 6773—Data Sheet | <input type="checkbox"/> No. 7077—Fly Spray |
| | <input type="checkbox"/> No. 7081—Grain Treater |

(PLEASE PRINT OR TYPE)

NAME

COMPANY

ADDRESS

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9,
P. L. & R.)
MINNEAPOLIS,
MINN.

BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

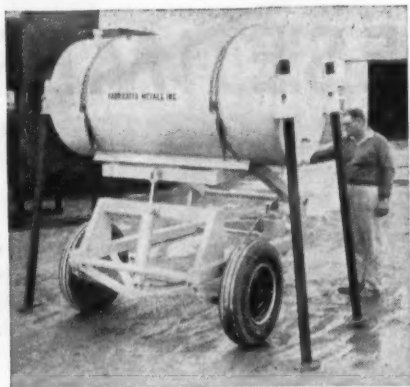
POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept.

Minneapolis 1, Minn.



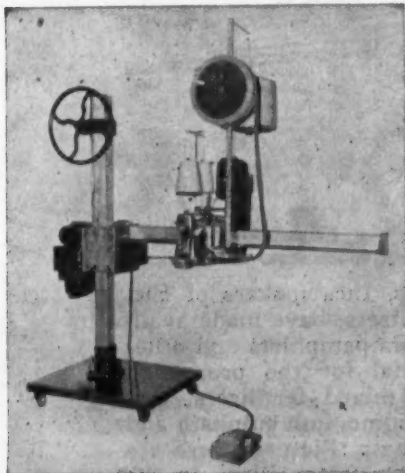
tank for gravity and pressure applications. The tank is supported on legs that are both removable and adjustable for height. A 1-in. metering valve is provided for accurate adjustment of flow, the literature states. Check No. 6765 on the coupon and mail it to secure the literature.

No. 6769—Pellet Booklet

Chemical Engineering Service, Division of Manitowoc Shipbuilding, Inc., has published a booklet on pelletizing. This booklet is full of useful information for the guidance of those desiring to pelletize, as well as full diagrams of the various types of installations possible. It explains the important factors to study before proceeding to purchase. The booklet is written and illustrated in simple terms and contains 21 pages of useful information. Check No. 6769 on the coupon and mail it to secure the booklet.

No. 7068—Sewing Machine Head

A portable traveling head unit for closing bags while they are on the platform scale has been introduced by the Minneapolis Sewing Machine Co. It is claimed that one operator can fill, weigh and sew without moving the bag or changing his position. Forty inches of horizontal travel is provided. Over-all length of the standard unit is 6 ft., 6 in., the height



is 6 ft. and the extended height with tape attachment is 7 ft. Check No. 7068 on the coupon and mail it to secure details.

No. 6770—Catalog

The RegO Division of the Bastian-Blessing Co. has announced the publication of its new A-100 catalog, covering the line of "RegO" anhydrous ammonia control equipment. Detailed descriptions of multi-purpose valves, globe and angle valves, check valves, relief valves, etc. are presented in the 28-page catalog. Full ordering information is included with each item. Check No. 6770 on the coupon and mail it to secure the catalog.

No. 7050—Trigger Unit on Gross Bagger

A new trigger arrangement with automatic cut-off is said to permit faster bagging with a semi-automatic gross bagger by the Richardson Scale Co. For the company's G-17 gross bagger, the new trigger arrangement holds the gate open longer, and on

most free-flowing materials the trigger can be set for the exact weight desired, a company spokesman said, eliminating all trimming. Check No. 7050 on the coupon and mail it to secure details.

No. 7077—Fly Spray

Pratt Laboratories, Inc., has announced the introduction of a new fly spray called "Fly Bomb." The product, which is now available to dealers, contains a repelling agent called "Tabutrex." The product can be used safely around the home, it is claimed, and it comes in 12-oz. aerosol container. Check No. 7077 on the coupon and mail it to secure details. Please print or type name and address.

No. 6768—Lining Materials

Wisconsin Protective Coating Co. has issued literature about its cold-set tank lining materials, which include coatings developed specifically for the fertilizer industry for service in nitrogen solutions, phosphoric acid, ammonium nitrate and other products. To obtain more details check No. 6768 and mail the coupon.

Gloomicides

"For a modern house," commented the prospective buyer, "these walls don't seem very sturdy."

"Well, maybe," the seller agreed grudgingly, "but they're not painted yet."

★

Somebody once remarked to Will Rogers that Webster spoke perfect English.

"Shucks," snorted Rogers in his own inimitable way, "if I wrote my own dictionary, so could I."

★

The football coach of Okeegum State was having a session with his highly lethargic team. They had lost all games thus far, and were suffering from a serious case of defeatism.

During the lecture, the coach kept emphasizing the importance of line play. "Most games," he repeated, "are lost at the tackles. Either just inside or outside of the tackles."

Looking up the coach was exasperated to note that Johnson—one of the tackles at whom he was pointing his talk—was dozing in the back row. "Johnson!" he roared, "where are most football games lost?"

Rousing himself with an effort, Johnson answered: "Right here at Okeegum State, Coach."

★

"What is the difference between results and consequences?" a teacher asked her class.

Little Billie answered: "Results are what you expect. Consequences are what you get."

★

A reporter approached a house where a murder had been committed, and started through the entrance. "Go along, go along," a police guard directed, "there's no admittance here."

"But I've got to get in," said the reporter. "I've been assigned to do the murder."

"Well, you're too late," announced the guard. "Someone has already done it. Now go along."

★

Another day we read aloud Sir Walter Raleigh's poem The Silent Lover.

The boy I happened to call on to tell the meaning of this poem grew red. "It means," he said, "that-uh-the feller that-uh-does a lot of talkin' don't get much lovin' done."

Agricultural Chemicals, Ltd. Names Sales Managers

PORT HOPE, ONTARIO—M. J. Daignault, general manager of Agricultural Chemicals, Ltd., Port Hope, Ontario, Canada, has announced the following changes in the company's sales staff, effective July 1.

H. R. G. Campbell became sales manager at London, Ontario. Mr. Campbell joined Agricultural Chemicals, Ltd. in March of this year. Prior to that time he was general manager of the Orford Farmers Co-op Co., Ltd., Muirkirk, Ontario.

L. H. Baril was named sales manager at Chambly, Quebec. He had been assistant sales manager there since 1956, and has been with the company for 20 years.

Agricultural Planes Here to Stay, Speaker Tells California Group

SANTA BARBARA, CAL.—"Agricultural aviation is an accepted practice and a real necessity in the state of California," Wesley E. Yates, in charge of University of California Department of Agricultural Engin-

earing at Davis, told the members of the 51st Annual Meeting of the American Society of Agricultural Engineers recently.

The ASAE annual meeting at Santa Barbara College, counted a total registration of 1,000 with 12 foreign countries represented.

Wesley Yates conducted the ASAE tour through the agricultural aircraft display at the Santa Barbara Airport, describing the different types of aircraft and equipment used, and the value of the crop dusting industry to the California farmer.

Typical aircraft and equipment were on display, as well as the newest designs to be certificated for such usage.

Wanda Branstetter, executive secretary of the Agricultural Aircraft Assn., arranged the aircraft display. The Ag Aircraft Assn. is composed of the crop dusting operations of the state of California.

RESEARCH GIFT

AMES, IOWA—A gift of \$1,000 has been given to Iowa State College by C. A. Knudson, president of the College Savings Bank in Ames, for tree disease research.

Mr. Dealer: Here are
2 great new chemicals
to control tough problem weeds

FEATURE THEM FOR FALL—AND FOR PROFIT!

WEEDAZOL

for CANADA THISTLE

The original amino triazole weed killer, pioneered and patented by us, is now proved to be one of the most deadly and selective weed killers so far developed. Because of its deep penetration, it kills completely. Especially recommended to control Canada thistle—which resists so many other chemicals—Weedazol also kills cattails, sow thistle and whitetop.

BENZAC

for BINDWEED

This brand-new weed killer is proving its effectiveness in clearing roadsides, rights-of-way and fencerows of otherwise highly resistant bindweed, as well as leafy spurge, Russian knapweed, bur ragweed and tenacious woody vines, thus keeping them out of fields and croplands.

These are volume sales-makers for you. Be sure you have these 2 products—Weedazol and Benzac—ready for the fall season. Order now, if you haven't already stocked up. Push them and profit! If you are not already selling Amchem Products, this is your chance to start off with a bang!

WEEDAZOL and BENZAC are registered trademarks of AMCHEM PRODUCTS, Inc.

AMCHEM PRODUCTS, Inc.
Formerly AMERICAN CHEMICAL PAINT CO.
Agricultural Chemicals Division
ST. JOSEPH, MO. AMBLER, PA. NILES, CALIF.

Originators of 2,4-D, 2,4,5-T and Amino Triazole Weed Killers

SUPPLIERS MAKE THESE MERCHA

IMPROVED ANCHOR TREBLE

NOW DUST-FREE AND MORE UNIFORM

New production techniques and equipment at Western Phosphates' modern plant in Garfield, Utah, now make possible an improved Anchor Treble that is dust-free and more uniform. Uniform pellets give easy, free-flowing application.

Whether you broadcast, drill, or apply by air improved Anchor Treble 45% guarantees your crops the highest total, highest available, highest water-soluble phosphoric acid for profitable, early maturity and greater yield.

Western Phosphates' centrally located plant and network of in-transit warehouses make possible prompt delivery of improved Anchor Treble in straight car and truckloads or in combination with Anchor Ammonium Phosphates 16-20-0, 13-39-0 and 11-48-0.

Anchor Treble available now from your local fertilizer dealer.

ANCHOR BRAND


Manufactured by WESTERN PHOSPHATES, INC., Garfield, Utah
Distributed by WILSON & CO. MEYER & CO., INTERMOUNTAIN
San Francisco, Los Angeles, Fresno, Phoenix, Salt Lake City,
Denver, Portland, Seattle, Spokane



Western Phosphates, Inc., Garfield, Utah, has issued a king-sized mailing piece entitled "What's in the bag for 1958?", mailing size of which is $7\frac{1}{2} \times 10\frac{1}{2}$ ", and when opened out measures 29×41 ". The opened out poster, inside of which is illustrated above, is suitable for wall or window display. Other sections of the folder describe cooperative advertising programs, available displays for counters, and other services offered by the firm.

American Potash & Chemical Corp., Los Angeles, Cal., offers its dealers a varied supply of merchandising helps in the form of booklets, mailing folders and advertising ideas to boost fertilizer sales. Pictured below (left) is the cover of a booklet measuring $5\frac{1}{4} \times 7\frac{1}{2}$ " containing full information on potash, its use, how it is mined, and its effect on various crops. Directly below are ads the company has used in its promotion, and which can be helpful as mailing pieces or as posters. They measure $7 \times 9\frac{1}{2}$ ".

Trona Potash



for high quality crops

quality fertilizer begins here...

with TRONA'S granular POTASH

grow quality crops with POTASH

QUALITY AND PROFITS ARE ASSURED

POTASH

American Potash & Chemical Corporation

PLAN before you PLANT

Brea BRAND

and

Brea fertilizer NEWS

Fertilized Range Produces Better Forage, Longer Grazing Seasons



Brea

Collier Carbon & Chemical Corp., Br technical and merchandising helps Above is an attractive store post 16 x 30". The circle in the center is with fluorescent ink, while the rem printing is in blue. At the sides are t tins made available by the compa shown here are typical of many av information on fertilization of range other crops.

ELEPHANT BRAND LINE

HIGH ANALYSIS FERTILIZERS

Elephant Brand FERTILIZERS

Why it pays to buy from THE ELEPHANT BRAND LINE



Cominco Products, Inc., makers of Elephant Brand fertilizers, have made available to their dealers pamphlets and other advertising material for the promotion of high analysis mixed fertilizers, ammonium nitrate, ammonium sulphate and triple superphosphate. Pictured here are four folders suitable for mailing. In the upper left-hand corner is a reference list to the line of products, and at the right a folder urging readers to order fertilizer ahead of the spring rush. Space is provided at the bottom of the folder for the name and address of the dealer.

THIS is the third in a series special emphasis on merch acids, when feasible, in the off- are more of the many selling h their suppliers, to aid in the me is emphasized that the material fraction of the wealth of sales id suppliers for full information on

MERCHANDISING AIDS AVAILABLE



Chemical Corp., Brea, Cal., offers merchandising helps to its dealers. The center poster measuring 18" x 24" is printed orange and black while the remainder of the materials are technical bulletins by the company. The two bulletins are of many available, giving information on range lands, and of

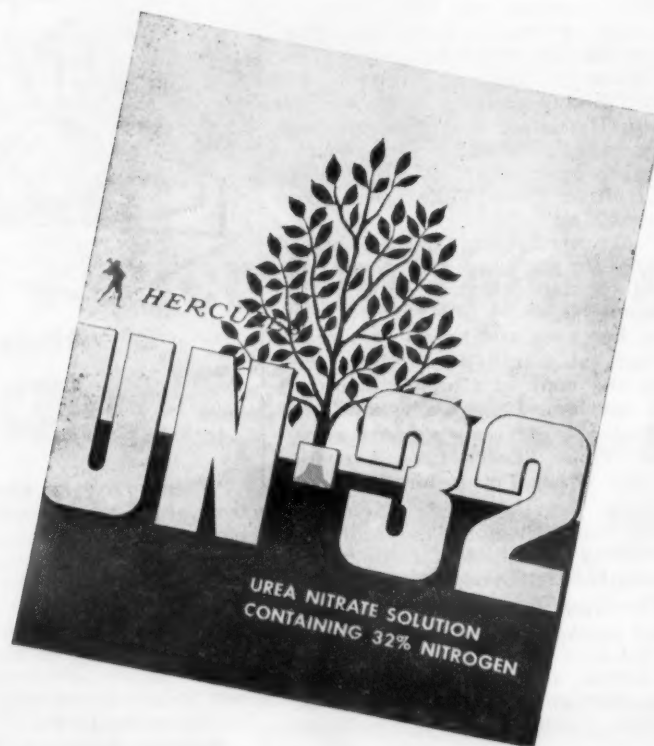
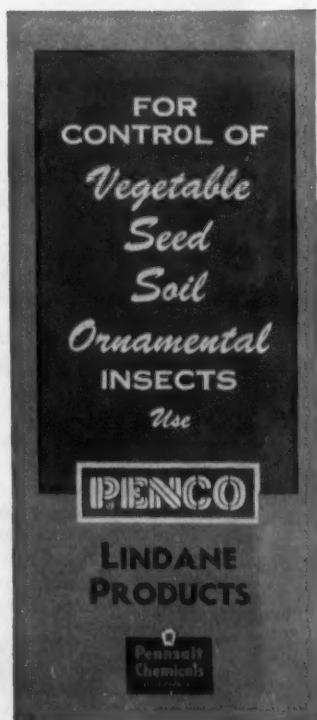


The Bank of America, San Francisco, has published a series of newspaper and magazine advertisements directed to the farmer, urging him to invest in fertilizer materials. The copy reminds the farmer that by paying promptly for his fertilizer, he can save 5% with 10-day cash discount. "A 5% savings in ten days is equivalent to 180% a year. It's an obvious opportunity for you to profit by using low cost bank credit..." the copy says. The Bank of America, by putting such facts before the farmer, helps to increase fertilizer tonnage.



Phillips Petroleum Co., Bartlesville, Okla., offers a wide assortment of newspaper advertising mats and other services to its dealers. Pictured above are some of the many mats available, as well as some of the mailing pieces for dealers to send to customers. The materials shown in the lower row are printed in color as well as black and white.

Third in a series of four Croplife issues laying emphasis on merchandising fertilizers and pesticides, in the off-season. Pictured on this page are many selling helps available to dealers from the Bank of America to aid in the merchandising of plant foods. It is at the materials shown here make up only a small part of the wealth of sales ideas available. Write your own information on what they have to offer.



Hercules Powder Co., Wilmington, Del., is preparing a new booklet describing its urea ammonium nitrate solution, UN-32. The booklet is to be available immediately for distribution to the trade. The front cover, pictured above, is printed in brown, green and black in attractive form. Dimensions of the cover are 8½ x 11".

Pennsalt Chemicals, Division of Pennsylvania Salt Manufacturing Co., has prepared a folder describing its Lindane products for pest control on various plants. The folder, suitable for mailing, is available to the company's dealers.



Doing Business With

Oscar & Pat



By AL P. NELSON
Croplife Special Writer

A middle-aged, bachelor farmer stood kidding with Tillie Mason, while holding the screened store door open, and neither Tillie nor he saw the big long legged wasp drift into the salesroom on an air current.

A few minutes later Tillie screamed. "Oh, Oscar, there's a wasp flying around me!"

Oscar frowned, looked up from his discount work, spotted the wasp flying around. "Ach, don't bother about him. He won't hurt you. Just leave him alone. He'll settle on the ceiling somewhere."

"Oh, I so scared of wasps," Tillie moaned nervously. "I had an aunt once who was stung on the lip by one. She couldn't talk for a week. It almost killed her. She was so used to scolding Uncle."

Oscar did not even reply. He went back to work. Suddenly there was a buzzing noise and something flew past his right ear. It was the wasp and he lighted nonchalantly on one of Oscar's sharpened pencils laid out in a neat row on his desk.

"So, you are getting schmardt, eh?" Oscar snapped. "Ach, I will fix you." And he reached for a copy of Croplife and folded it. The wasp meanwhile merely moved his wings periodically. He was a most tempting target.

"Oh, Oscar, don't!" cried Tillie. "You might miss him, and then he could get mad and sting me."

Slowly Oscar moved to get a better angle to strike. "Ach, I haf killed many wasps in my day, Tillie. They don't bother me, I tell you."

With Teutonic fury, Oscar whacked the copy of Croplife down toward the wasp on the desk. But perhaps he whacked too furiously, because the paper merely grazed the edges of the wasp. The latter buzzed angrily and flew in circles, Oscar felt rebuffed and his pride was hurt. It did not help either when Tillie cried, "You missed him!"

Oscar, his fighting blood up, looked around for the wasp. "Oh, there he is right on the wall over here!" Tillie suddenly shrieked. She put her hands over her eyes and began to scream.

"Ach, stop it," Oscar cried, grabbing the copy of Croplife again. "I will get him. I am madt now."

"Get one of those pressure cans," cried Tillie. "Don't take a chance missing again. Poison him!"

Oscar was shocked. "Ach, and waste that schtuff? That schtuff is for selling to customers. I safe money. I swat this feller with Croplife."

The wasp was higher than Oscar could reach. So craftily, his lips tight he got on a chair and raised himself to within striking distance of the wing fluttering wasp.

"Now, Mister, I get you!" he hissed.

Once more Oscar put his might into the blow. But again he was too eager and merely grazed the wings of the wasp. This time instead of flying away, the angry wasp circled, landed on Oscar's fat neck and did some drilling.

"Ow!" howled Oscar, striking at the spot where his neck burned.

By so doing he lost his balance. Over went the chair and heavy Oscar in the other direction. He landed on an island loaded with insecticide displays. Oscar and bottles, cans and packages cascaded on the floor, while Tillie just stood and screamed.

By this time several male customers had entered the store and could see what had happened. One, Jim Murdock, tried to help a fuming Oscar to his feet, but Oscar sudden-

ly moaned. "Mine hip! Mine hip!" he cried, his face white.

"He musta hurt his hip fallin' on that island," said Murdock. "Let's call the ambulance and send him to the hospital. Maybe his spine is out of whack."

"Oh, and his face is turning a funny color," Tillie said worriedly. "Sort of purplish."

Murdock telephoned the hospital and shrilly an ambulance was on the way over.

"Ach, my leg hurts!" bellowed Oscar. "That crazy wasp. He's to blame for all this. Why don't somebody help me?"

"We can't move you with that bad hip," Murdock explained. "The ambulance is coming."

"The ambulance!" barked Oscar through white lips. "They charge so much. Ach, what a day!"

Pat McGillicuddy arrived at the store from a field trip and was just in time to see the ambulance men load Oscar into the car. Startled, Pat went with them to the hospital.

He came back to the store a half hour later. A nervous, strained Tillie met him. "Oh, how is he?" she asked. "I'm so shaken I had three cups of coffee and two aspirins."

Pat's expression was sober. "Oscar is lucky," he said. "In the first place he's allergic to wasp venom. Some people are, you know. Oscar was turning purple. They gave him antibiotics and got him out of it. If this had happened far out in the country,

I don't know what would have happened to the poor fellow."

"Oh, I knew it was something terrible," Tillie said. "And how's his hip?"

"Out of joint. They're putting him in traction for 10 days. It'll be two or even three weeks before he can come back."

"Poor, poor Oscar," said Tillie. "And all he tried to do was kill a wasp that was bothering me."

Suddenly she pointed to the wall. "Oh, there's that terrible old wasp now, Pat. Maybe he'll sting all of us."

"No, he won't," Pat automatically reached for a can of pressurized insect killer and stalked the wasp. In the meantime, two farmers had come in and were watching.

Pat slowly got the can about two feet from the wasp whose wings were fluttering angrily. Then Pat pushed the button. The spray surrounded the wasp, he struggled valiantly, and then sank to the floor. Pat stepped on him and crushed him, just to make sure.

"Hey, that's sure good stuff," said Jack Peterson, a lanky farmer. "My old lady got stung twice by wasps this summer, once in the raspberry patch and once in the currant bushes. Gimme two cans of that stuff. It's handy to have around."

"I'll take a can, too," said a second farmer. "What's the use to swat wasps when you can get sure-kill stuff like that?"

"We found that out!" Pat said soberly. "At least one of us did."



How to Value Your Inventory

By Jack E. Bedford
Professor of Management
Armstrong College
Berkeley, Cal.

Higher prices and higher tax rates have made inventory valuation a most vital profit factor for dealers

When your farm store inventory is overvalued, the gross profit of the business is overstated. Thus, the amount of income taxes payable is higher and your profit after taxes is lower.

Since most prices are steadily increasing and the income and property tax rates are advancing, it is important for you to carefully consider your inventory valuation.

Methods Approved: The Bureau of Internal Revenue approves five methods of inventory valuation for a farm supply business:

1. Cost.
2. Cost or market, whichever is lower.
3. Retail.
4. FIFO (First-in-first-out).
5. LIFO (Last-in-first out).

You can use any of these methods of valuing your inventory as long as you use the same method consistently. However, even though you have been using one method for years, this can be changed with the approval of the Bureau of Internal Revenue.

Cost Valuation: This is the oldest method of valuing inventory. The original cost of the items inventoried is used for the basis of the valuation. You can use your original invoice to

determine the cost on each item in stock. Or, you can mark the stock with a cost code that is decoded when the inventory is taken and computed.

During a time of rising prices, the cost valuation may not reflect present conditions. It may cost more to replace the stock than is indicated on the inventory valuation, and the profit picture will not be a true picture of your feed business.

Cost or Market, Whichever Is Lower: This gives you a low value for your inventory at the end of the period. It will reduce your gross margin for the past year and will increase it for the coming year. Current sales are charged with the stock at the lowest possible price during the period.

When you decide to use this method of inventory valuation, you will need to set up two values. You must determine both the cost and the market price for each item in stock. Then, you must select the lowest of these and use it for your inventory valuation.

For instance, consider the following examples:

Item A	Cost....\$5.00	Market....\$7.00
Item B	Cost....\$1.50	Market....\$1.00
Item C	Cost....\$3.50	Market....\$3.00

The total of the items based on

cost is \$10 and on the market value it is \$11. However, in the inventory valuation you must select the lowest price on each item...\$5, \$1, and \$3 giving you an inventory valuation of only \$9.

Retail Valuation: This is perhaps the most popular method of inventory for retail dealers. It is easier to take—easier to compute—and it gives a true picture of the value of your inventory.

With the retail inventory valuation method, you count and list your stock at its retail value. When the inventory is completed, the extensions are made and totals determined for the retail value. Next, you translate this to a cost figure for determining your profits for the year.

For instance, if the total of your store's inventory is based on the retail valuation of \$10,000, you reduce this by the amount of your average markup. If you have a 20% average markup, your inventory would be \$8,000 at cost. Or, if you obtain a 35% markup on the average, you would reduce the \$10,000 retail valuation by this amount and have a cost inventory valuation of \$6,500.

First-In-First-Out: This inventory valuation method is based on the assumption that the first stock purchased was the first stock sold. Thus, the stock on hand at inventory time is the stock most recently purchased.

To use the FIFO method of inventory valuation, you will need to maintain unit control records that also indicate the cost price of each purchase. Then, when you take your inventory, you work back from the latest cost until the quantity of stock is valued on the inventory.

Consider this example in applying the FIFO method of inventory valuation:

	Purchases	Cost
Jan. 1	24	\$1.00
April 10	12	\$1.50
May 28	12	\$2.00
Oct. 26	6	\$3.00

If the inventory count on Dec. 31 reveals that there are 20 of these items in stock, your valuation would be handled this way:

6 at \$3.00	\$18.00
12 at \$2.00	\$24.00
2 at \$1.50	\$3.00
20	\$45.00

Since it is the objective of merchandising to sell the old stock first, this inventory method has many advocates. It is complicated to calculate, however, because unit control records must be maintained and several extensions must be made for most items in stock.

Last-In-First-Out: LIFO has come in for more and more attention recently in inventory valuation. The court decision awarding R. H. Macy & Co. permission to apply the LIFO system from 1942 through 1947 with estimated \$9 million refund for overpayment of taxes plus interest has been responsible for this recent interest in LIFO.

The LIFO inventory valuation method charges current costs against current sales. Thus, it prevents profits from being overstated. Overstated profits mean that there is an over-payment of taxes. And, since taxes must be paid in cash a firm may find itself without adequate cash to replace stock due to overpayment of taxes.

For instance, consider this example in applying the LIFO method of inventory valuation:

	Purchases	Cost
Jan. 10	12	\$1.00
March 15	6	\$1.50
July 10	12	\$2.00
Oct. 10	12	\$3.00

If the inventory count on Dec. 31 reveals that there are 20 of these items in stock, your valuation would be handled this way:

12 at \$1.00	\$12.00
6 at \$1.50	9.00
2 at \$2.00	4.00
20	\$25.00

As you can see, the LIFO inventory valuation method gives a lower value than the FIFO in periods of rising prices. But, when prices are falling,

(Turn to VALUE INVENTORY, page 16)



FARM SERVICE DATA

Extension Station Reports

Ranchers in the high desert range country of eastern Oregon may be able to find new profits in wintering beef cattle, according to scientists at the Oregon State College agricultural experiment station.

Phosphorus-fertilized flood-meadow hay plus protein supplement proved the key to faster winter gains in trials last winter at the Squaw Butte-Harney branch experiment station at Burns.

The wintering feed program is now regarded largely as a "maintenance" operation, holding steers for grass-finishing on range the next summer.

Weaner steer calves on a 132-day winter feed program gained 33 lb. more when fed phosphorus-fertilized hay than animals on unfertilized hay, reported Farris Hubbert, animal scientist at the branch station. Phosphorus fertilizer increases the white-tip clover content of flood-meadow hay, resulting in both higher crude protein and phosphorus content of the hay, he explained.

Addition of 1 lb. of cottonseed meal daily to unfertilized hay rations produced 37 lb. more gain than unfertilized hay alone. But the big boost came from a combination of the cottonseed meal and phosphorus-fertilized hay—80 lb. more gain than with unfertilized hay during the 132-day trial. All animals received two pounds of barley daily.

Valuing steers at 25¢ lb., winter gains netted \$5.41 above feed costs for animals on unfertilized hay; \$10.31 for unfertilized hay plus cottonseed meal; \$14.06 for phosphorus-fertilized hay; and \$21.19 with the combination of fertilized hay and cottonseed meal, Mr. Hubbert said.

In addition to boosting clover content of the meadow hay, application of 40 pounds of phosphorus (P205) per acre increased hay yields about three-fourths of a ton per acre.

The feeding trials, however, measured only quality of hay and didn't include increased profits per acre from total hay yields. Mr. Hubbert said all animals ate the same amounts of hay. Main difference was the levels of crude protein and phosphorus available in the two types of hay.

Calves fed unfertilized hay didn't receive sufficient phosphorus to meet "recommended allowance," Mr. Hubbert said, even though phosphorus supplement was available "free choice" in a salt and bonemeal mix.

Addition of one pound daily of cottonseed meal brought the unfertilized hay up to adequate phosphorus levels. Fertilized hay, due to clover content, met phosphorus requirements without addition of cottonseed meal.

★

Heavy applications of phosphate fertilizer to rose clover materially increased production and protein content, and showed large carryover effect in a fertilizer research experiment near Lincoln, Cal., according to the California Fertilizer Assn.

This experiment has been conducted by the University of California, under the direction of Drs. W. E. Martin, W. A. Williams, and Walter H. Johnson. Their report, published in the official publication of the University, California Agriculture, says, in part:

"Range test plots of rose clover harvested in May, 1957, showed striking second year or carry-over effects where heavy—600 or 1,200 lb. per acre—applications of superphosphate

were made in December, 1955, but where only 300 lb. were applied the carryover effect was small.

"The plots—on Placentia sandy loam near Lincoln—were established in a four-year-old stand of rose clover that had not been fertilized prior to Dec. 2, 1955, when superphosphate was applied at rates of 300 lb., 600 lb., and 1,200 lb. per acre.

"Analyses of the clover showed an increase of over 300% in total forage production, a 70% higher protein content, and 66% higher total phosphorus as a result of fertilization.

"The total extra forage produced

from the 300 pound rate—applied on two successive years—was almost exactly the same as that from a single 600 pound rate plus its second year carryover effects."

★

Weed control in sorghums can mean the difference in a reasonably good crop and no crop at all.

W. M. Phillips, research agronomist for the U.S. Department of Agriculture and the Kansas Agricultural Experiment Station, found that at Hays in 1956, one weed for each three feed of sorghum row spaced 20 in. apart completely destroyed a grain sorghum crop. Weed-free plots yielded more than 20 bu. per acre. This was under conditions of very limited rainfall.

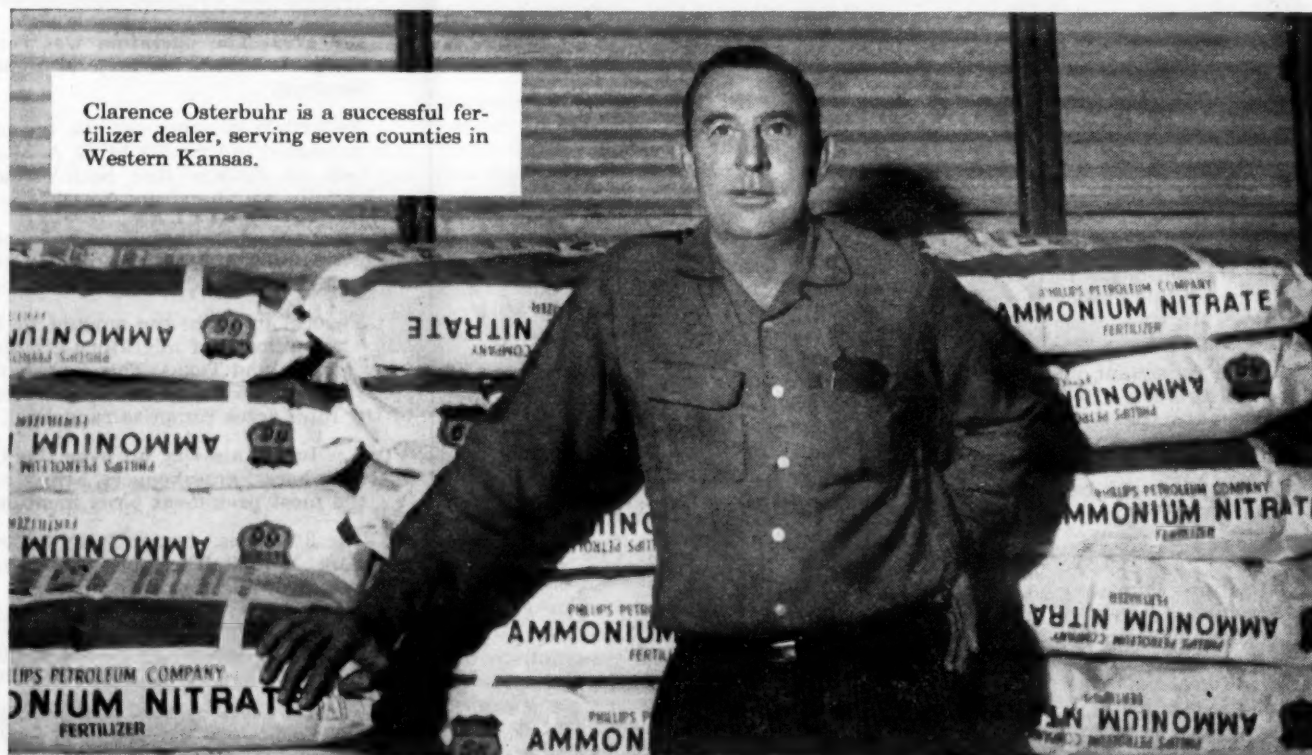
Under more favorable moisture conditions in 1957, one weed per 2 ft. of sorghum row reduced the yield approximately 40%, and one

weed per foot of row reduced the yield more than 50%.

Most common weeds encountered in the study of weed control in sorghums were fireweed, pigweed, sunflower, and weedy grasses such as foxtails and crab grass. Dr. Phillips points out that, while these weeds may emerge throughout much of the growing season, most emergence of fireweed and sunflower occurs prior to the time sorghum normally is seeded. Pigweeds require warmer soil for germination, and many will not emerge until it is nearly time to plant the crop.

Mr. Phillips stresses the importance of a weed-control program before the crop is planted. However, he acknowledges that under many conditions weeds become a problem regardless of precautions taken prior to seeding.

"Losses caused by weeds can be large and, at present, there is no practical chemical control for weedy



Clarence Osterbuhr is a successful fertilizer dealer, serving seven counties in Western Kansas.

"My Customers Prefer Phillips 66 Ammonium Nitrate"—

Clarence Osterbuhr
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Mr. Osterbuhr says: "We serve an area where the farmers have a comparatively long experience with nitrogen fertilizer. That's why I'm particularly pleased to offer Phillips 66 Ammonium Nitrate to my customers. Its uniformity and its exceptional free flowing qualities make it a favorite with farm users who expect the best."

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Dealers appreciate the extras in the Phillips 66 program . . . consistent, convincing advertising of Phillips 66 Ammonium Nitrate in leading farm papers, personal service from Phillips 66 field men, and prompt deliveries which help dealers sell more, profit more. Order your supply of Phillips 66 Ammonium Nitrate today.



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TAMPA, FLA.—3737 Neptune St.
TULSA, OKLA.—1708 Ulca Square
WICHITA, KAN.—501 KFH Building

grasses growing in the crop. This makes desirable a method of sorghum culture which will permit the use of some cultivation equipment," the agronomist points out.

A good cultivation program to follow, if furrows are properly spaced, is to "throw out" as soon as the operation can be performed without covering the sorghum. Then as weeds begin to emerge following this operation, the ridges can be "thrown in." The third cultivation, if necessary, may be performed with a shovel-type cultivator. If these operations can be accomplished when weeds are small, nearly perfect weed control can be obtained, according to the bulletin.

★

"Don't burn wheat straw and stubble to get rid of it after harvest," cautions the National Plant Food Institute.

When wheat straw is burned, the soil is robbed of organic matter. This organic matter can help condition land to produce better crop yields.

A substantial part of the nutrients in the straw is lost—principally nitrogen—when it is burned.

Straw should be plowed under or worked into the soil before planting another crop.

When plowed under, it pays to add fertilizer. The billions of soil organisms that rot the plowed-down straw and make it into soil-building humus use up large amounts of nitrogen, phosphate and potash to multiply and do their work.

If the soil is low in these elements, the organisms can use up all the nutrients. In such a case, the new crop may starve for needed plant food.

Two important purposes are accomplished when fertilizer is plowed down with the straw. The needs of the organisms are taken care of so the soil can be improved. Some of the nutrients to help the crop that follows are supplied.

★

Pasture improvement can help dairymen cut costs of production and boost their income, by providing more high quality roughage to replace some of the grain and concentrates fed to milking herds.

That was the statement of the Midwest division of the National Plant Food Institute, in reviewing reports by midwestern dairy specialists.

"G. A. Williams, Purdue University extension dairyman, points out that roughages are the cheapest source of nutrients for dairy herds," the committee says.

"Herds can consume 70 to 80% of their dairy needs from pasture," according to Mr. Williams. "Good quality hay and silage produce milk at the lowest cost per gallon."

Michigan studies indicate that feed costs can be reduced by 20 to 25% on the average dairy farm by improving the quality of the roughage and then feeding more roughage and less protein concentrates.

Dr. William Tyznik, Ohio State University animal scientist reports that high quality hay can eliminate the need for purchasing expensive vitamins, mineral and protein supplements.

Wisconsin agronomists say good pasture can be produced for about one-third to one-half the cost of corn and other grains.

"High yielding, high quality pastures are the result of good soil fertility practices and sound pasture management," says the institute.

"Good soil fertility practices mean adding needed lime and fertilizer to build up the soil's fertility level and then top-dressing regularly with fertilizer to keep pasture production high. Good pasture management means avoiding overgrazing, changing pastures frequently and harvesting surplus forage for hay and silage."

Cotton Stays No. 1 Crop in California In Terms of Value

SACRAMENTO, CAL. — Cotton maintained its position in California as the top farm crop in terms of value last year, retaining the lead it established in 1947. The California Crop and Livestock Reporting Service reports the 1,537,000 bales produced were valued at \$258,248,000. In addition, the value of the 613,000 tons of cottonseed was \$32,305,000.

Production of cotton in 1957 was the fourth highest for this state, the record high being 1,818,000 bales produced in 1952. California, ranked second among cotton states, is exceeded only by Texas. Mississippi was third, followed by Arkansas, Arizona, Alabama and Tennessee.

The average yield of 1,053 lb. per acre is a record high for this state. The previous high was 924 lb. in 1956. Arizona led the nation with 1,037 lb. per acre. California was second. The national average was 388 lb.

Kern led all California counties in cotton in 1957 with 179,900 acres, 1,213 lb. per acre and 456,000 total bales produced. Fresno was second with 173,000 acres, 1,107 lb. per acre, and 400,000 bales. Tulare County harvested 137,600 acres and 260,000 bales; Kings County 92,500 acres and 178,500 bales; Imperial County 42,800 acres and 92,600 bales; Madera 39,900 acres and 63,000 bales; Merced 25,000 acres and 45,600 bales.

The One Variety Cotton Act passed by the Legislature in 1925 generally limits planting of cotton in California to the Acala Variety.

VALUE INVENTORY

(Continued from page 14)

the LIFO method gives a lower value.

Which Method? Each of the five approved inventory valuation methods will give a different result for the same physical stock count. Thus, your profit will be different depending on the inventory method selected for your inventory valuation.

Cost gives you a true picture of what you spent for your stock. Cost or market gives you the lowest price based on your past or current cost. Retail is faster. FIFO gives you a lower figure when prices are falling. LIFO gives you a lower figure when prices are rising.

As mentioned earlier, the Bureau of Internal Revenue requires you to be consistent in your inventory valuations from year to year. However, you can request a change from your present method if you feel that another method would fit your operation better.

Federal Form 970 must be completed and filed with your tax return for the year you wish to make a change. When this is approved, you are then permitted to use the new inventory valuation method.

Dale F. Bray Heads Delaware Department

NEWARK, DEL. — Dr. Dale F. Bray has been appointed chairman of the department of entomology at the University of Delaware. Born in Paw Paw, Mich. in 1922, Dr. Bray attended Western Michigan College of Education and Michigan State University before entering the Army in 1943. He did malaria survey work with the medical corps on Guadalcanal and in the Philippines.

After his discharge from the Army in 1945, he resumed his study at Michigan State University where he received his B.S. and M.S. degrees. He came to the University of Delaware in 1949 as a teacher and researcher and received his Ph.D. at Rutgers University in 1954.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

That food labels need carry no information about whether or not pesticides have been applied to the crop before harvest was decided by the House Interstate Commerce Committee. The ruling amended the definition of what constitutes chemical preservatives as referred to in the Federal Food, Drug and Cosmetic Act. Pesticides are not preservatives, it was brought out.

A new firm in Ecuador for the processing of pyrethrum flowers was announced. Known as Inexa, Industria Extractora C.A., the firm will be under the managership of Dr. Luis Werner Levy.

Dr. O. B. Jesness, agricultural economist, writes that the partnership between farmers and bankers, increasing over the years, is now an important factor in the purchases of ample amounts of fertilizer materials and other farm needs.

Attorneys for the plaintiffs in New York's DDT trial announced that they would appeal the decision of Judge Walter Bruchhausen who had ruled that the 14 Long Island residents who tried to stop the government's pesticide spray programs had no proof for their claims against DDT.

The U.S. Department of Agriculture announced that it would release 50 million sterilized screwworm flies, half of them males, in the southeastern states to reduce the numbers of screwworm pests in the area. The operation was conducted jointly by USDA and the states involved. An area of some 50,000 to 75,000 square miles is involved.

An article pointing out the merits of selling fertilizers the year around was presented in Croplife by G. A. Wakefield, Olin Mathieson Chemical Corp. He told his readers that both efficiency and profits will be bolstered by successfully merchandising fertilizers in the off-season.

International Minerals and Chemical Corp. announced that its grant-in-aid program for research in plant nutrition and soil fertility totaled \$125,000 for the 1957-58 period. Some 25 colleges were named as recipients of the grant.

Federal funds in the amount of \$1 million were made available to help stop the outbreak of migratory grasshoppers in Colorado, Kansas, Oklahoma, New Mexico and Texas. This represents about a third of the expected cost of spraying some 5 million acres in 46 counties of these five states. About 80% of the total acres comprise rangeland.

Insect activity all over the U.S. stepped up early in July, with corn borer, grasshoppers, armyworm and alfalfa aphids being among the most prominent pests mentioned in reports.

The 3% excise tax on freight movements was ended by Congress, effective Aug. 1, 1958. The move was hailed by the fertilizer industry as a boon to its tight profit margin situation.

Spencer Chemical Co. closed its Vicksburg, Miss., anhydrous ammonia plant on June 21 for the period of approximately a month, to adjust its inventories. The company continues to make deliveries from the plant as usual.

Edward Block was named to head the chemical division of Olin Mathieson Chemical Corp. He was formerly vice president in charge of the company's agricultural and phosphate chemicals divisions.

Fertilizer consumption in the U.S. and possessions totaled 22.7 million tons in the fiscal year ended June 30, 1957, the U.S. Department of Agriculture reported. This was an increase of 515,041 tons, or 1.7%, over the use the previous fiscal year.

Mass DDT spray projects got a clean bill of health in a decision following a U.S. District Court trial in Brooklyn. Action had been brought to restrain the mass spray projects, and plaintiffs charged that such sprayings of gypsy moth were injurious to health, property and wildlife. Walter Bruchhausen, federal judge, said in his decision that mass DDT spraying did not live up to these charges.

Approval by the Senate judiciary committee of the Kefauver-Patman amendment to the Robinson-Patman Act was given recently. The provisions of the bill cover only food, drugs and cosmetics which would be used in human food or applications. Adoption of the act would deny to manufacturers the defense that reductions in price resulted from a competitive situation.

Congress was preparing legislation to provide funds for research on the effects of pesticides on wildlife. Government officials hailed the move as being one of the most constructive to come about in years, in bridging the gap between the USDA and the Department of Interior caused by misunderstanding in seeking ways to gain common ends.

Jacob White was named president of the Nitrogen Division, Allied Chemical Corp., New York. Mr. White, who has been associated with Allied since 1921, succeeds Hugo Riemer in his new position. The new president was advanced from the office of vice president.

Federal, state and local agencies were fighting a major grasshopper outbreak in the Southwest states. In some areas it was described as the worst plague since the 1930's. . . . On the eve of the annual meeting of the National Plant Food Institute, industry leaders told Croplife that they generally were optimistic about overcoming the slow fertilizer start caused by cold, wet weather this spring.

At the convention speakers explored ways and means to alter farmers' attitudes and practices regarding use of plant foods. It was generally concluded that soil tests, farm demonstrations, alert retailers, a broad program of education and adequate credit are the principal factors to bend the fertilizer use curve upwards.

The Senate Interstate Commerce Committee approved and sent to the Senate a floor bill which would have a marked effect on the use of private carriers engaged in hauling agricultural commodities in return haul loads in interstate commerce. The amendment will be fought by the association of private carriers, but has the support of railroads and trucking associations.



R. I.

COLLIER pointing out that the fertilizer industry is not doing enough to help the farmer. The fertilizer industry is not doing enough to help the farmer. The fertilizer industry is not doing enough to help the farmer.

Office Grad

LITTON fertilizer for Arkansas year has Salvo, fertilizer proved in parent 0-1-1 2-1 (0-14-0-18), 1-2-4-4 (3-6-8-12) The grades (3-9-18 5-10). Amo 39-0, e terials strict

Tree Differ

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R. H. McGough

J. G. Baldwin

COLLIER APPOINTMENTS—Appointment of R. H. McGough to manager, agricultural sales development and J. G. Baldwin to manager, agricultural chemical sales has been announced by Collier Carbon and Chemical Corp., manufacturer of Brea Brand fertilizer products. Both appointments are effective immediately, according to Robert S. Ray, vice president. Mr. McGough formerly was manager, agricultural chemical sales; Mr. Baldwin formerly was manager, industrial chemical sales.

Official Arkansas Grade List Released

LITTLE ROCK—The approved fertilizer ratio and minimum grade list for Arkansas during the 1958-59 fiscal year has been released by Henry DeSalvo, head of the Arkansas feed, fertilizer and pesticide division. The approved ratios, with minimum grades in parenthesis, are as follows:

0-1-1 (0-20-20), 0-1-2 (0-10-20), 0-2-1 (0-20-10), 0-2-3 (0-20-30), 1-0-1 (14-0-14), 1-1-1 (8-8-8), 1-1-2 (9-9-18), 1-2-1 (5-10-5), 1-2-2 (5-10-10), 1-4-4 (3-12-12), 2-1-1 (14-7-7) and 3-4-6 (6-8-12).

The following ratios and minimum grades are not recommended: 1-3-6 (3-9-18), 2-3-9 (6-9-27) and 2-1-2 (10-5-10).

Amonium phosphates (16-20-0, 13-39-0, etc.) will be considered as materials and no ratio and grade restrictions shall be applicable.

Tree Fertilization Brings Different Responses

SAN FRANCISCO—Studies made in California timberland indicate that Redwood, Ponderosa Pine and Douglas Fir trees respond differently to the fertility level of the soil and to the application of fertilizers.

When nitrogen, potassium and phosphorus were applied equivalent to 300 pounds per acre of each element, Douglas Fir in sandy loam and in a greenhouse showed a good response. Redwood seedlings under the same conditions also showed a good response in the California tests.

A marked response to the fertility level by Redwood seedlings on a Soquel soil of high fertility was noted while seedlings on an Aiken soil, a low fertility soil, made poor growth. Tests showed that Ponderosa Pine seedlings grew differently when Aiken, Dubakella red topsoil and Dubakella yellow subsoil were used. The relative availability of calcium and magnesium in the three soils caused the difference. Ponderosa pine uses approximately the same amount of phosphorus from the three soils but not the same amount of calcium and magnesium.

Timber fertilization in the state is further complicated by the presence of distinct edaphic races, varieties only found on particular types of soil, of Ponderosa Pine.

Edward C. Stone, assistant professor of forestry at the University of California at Berkeley, stated, "Planned research on the role of fertilizers in the production of timber trees should determine how the soil fertility level affects the potential yield, the initial survival of the seedling, and what relative advantage the seedling may or may not gain from fertilizer applications over the associated brush species found on good and poor sites."

New Fertilizer Law In Effect in Canada

WINNIPEG — Canada's new federal fertilizer act, which overhauled previous legislation and brings regulations up-to-date, went into effect July 1. The act was approved by parliament in April this year and regulations were authorized by the governor-general in Council in June.

C. R. Phillips, of the Canada Department of Agriculture's plant products division, explains that one immediate result of the revised act will be to increase plant food content of some fertilizers because the regulations set a higher minimum standard. It is anticipated this move will tend to eliminate smaller volume grades of lower analysis.

Special attention has been given to the sale of fertilizers with a pesticide content. It will now be possible for Canadian farmers to obtain mixtures of fertilizers and pesticides provided

they contain pesticides of the type and quantity suitable for the purpose intended. The farmer must also be supplied with labelling and directions for use of the product. Last year fertilizer sales in Canada reached 800,000 tons.

Pennsalt Chemicals Moves Pittsburgh Regional Office

PITTSBURGH, PA. — Pennsalt Chemicals Corp.'s industrial chemicals regional office, formerly located in the Alcoa Bldg., Pittsburgh, will move into new quarters at Natrona, Pa., effective Aug. 4. The move will coordinate sales activities with plant facilities at the site of the company's original plant on the Allegheny River 21 miles north of Pittsburgh, the company says.

Office quarters for the regional office have been remodeled in the move to provide better customer service by centering manufacturing, shipping

and sales activities at a single location.

John C. Hampson, newly appointed regional manager, replacing William P. Snelsire who has retired, will be in charge of sales activities for Pennsalt organic and inorganic chemicals.

Coincident with the relocation of the Industrial Chemicals Regional Office, Pennsalt announced that it will also move to Natrona the sales, research and development units of the Corrosion Engineering Products Department.

North Carolina Tonnage

RALEIGH, N.C. — Fertilizer shipments in North Carolina during May totaled 295,452 tons, compared with 211,294 tons in May, 1957, according to the North Carolina Department of Agriculture. Shipments during the first 11 months (July-May) of this fiscal year totaled 1,347,047 tons, compared with 1,450,384 tons in a comparable period a year earlier.

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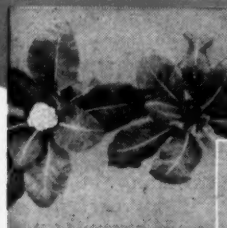
Agricultural Offices:

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KNOXVILLE, TENN. • 6105 Kaywood Drive
PORTLAND, OREGON • 1504 N.W. Johnson St.

Cauliflower: left, boron treated; right, brown curd with boron deficiency



Alfalfa yellows and rosetting due to boron deficiency



Apples with external cork cracks, necrotic areas and dwarfed

EXAMPLES OF BORON DEFICIENT CROPS



Tobacco with die-back of terminal bud rolling of upper leaves

State-Federal Programs Viewed From Angle of Public Relations

By Allen B. Lemmon*

Chief, Division of Plant Industry
California Department of Agriculture
Sacramento, Cal.

IN California, the development and widespread use of new pest control materials has been taken as a matter of course. In general, we have been dealing with farm people who are better informed concerning the benefits to be derived from proper use of chemicals. You will recall that there was great concern over drifting arsenicals fifteen years ago, but with the newer materials, newer regulations, and better trained operators, complaints have been minimized in spite of the large increased use. The eradication programs carried on by the California Department of Agriculture and the County Agricultural Commissioners have been supported with surprisingly few objections.

About two years ago, when the Mediterranean fruit fly was found in Florida, we took it for granted that a major eradication program would be developed. There was some apprehension over possible adverse reaction to repeated spraying over large cities, but the importance of the eradication of this pest made the program a must. We encouraged the program, and were gratified indeed that the U.S. Department of Agriculture and the people of Florida joined forces to fight the pest.

Opposition to Program

We thought that there should be similar support in the fight against the gypsy moth in the northeastern part of the United States, and were surprised when the so-called gypsy moth case developed in New York. The gypsy moth is a leaf-eating insect that does hundreds of thousands of dollars of damage each year to trees in a region of about 38,000,000 acres in the northeastern states. This pest was brought into the United States from France in 1869 by a French scientist who hoped to develop a hardy race of silk-producing insects by crossing gypsy moths with silkworms. It was a clever idea, but it didn't work out, and some of the larvae escaped, with the result that the pest became established in nearby wooded areas.

Twenty years later the infested area covered about 360 square miles in eastern Massachusetts. It has spread rapidly since then, wind being the principal carrier. If uncontrolled, it is believed that the gypsy moth could spread to every state in the union.

DDT is the first pesticide that has offered possibilities of eradicating the pest. The treatment is from about the first of May to the middle of June, with the spray consisting of one pound of DDT in a gallon of oil applied by aircraft at the rate of one gallon per acre. This is the same type of spray used so satisfactorily in California against the beet leafhopper and the wheat sawfly.

The program of gypsy moth control or eradication has been developing satisfactorily until last year, when Long Island was sprayed. This action resulted in the filing of injunction proceedings by a group of residents. The plaintiffs charged that DDT is recognized to be "a delayed-action, cumulative poison such as will inevitably cause irreparable injury and death to all living things, including human beings, animals, birds, insects, and the predators and parasites of

harmful insects, if ingested, inhaled or brought into contact therewith in sufficient quantities or over a sufficient period."

The plaintiffs claim that some of them have already absorbed an accumulative toxic amount of DDT due to exposure directly through household or garden spraying, or indirectly from eating sprayed vegetables or fruit, milk, meat or eggs. It is alleged that the DDT spraying will not only injure the health of the plaintiffs, but also birds, fish, and their food supply, as well as preventing them from utilizing their land for organic cultivation. The trial continued from Feb. 10 to March 4, with 34 witnesses for the plaintiffs and 16 for the defense. The witnesses for the plaintiffs generally submitted testimony in support of the complaint, while those for the defense testified with regard to the large amount of work that has been done to establish the toxicity and possible hazards from use of DDT. They were of the opinion that the small amount used was not harmful to man or wildlife.

Dr. Wayland J. Hayes, Jr., chief of the toxicology section, Communicable Disease Center, U.S. Public Health Service, Savannah, Ga., presented excellent testimony pertaining to the effect of DDT on humans, and the storage of DDT either in laboratory animals or in humans.

Dr. Clarence H. Hoffman, assistant director, entomology research division, Agricultural Research Service, U.S. Department of Agriculture, testified with regard to the studies he had made on the effect on wildlife by the DDT spray programs. He was permitted to introduce many publications setting forth the extensive work that he had done, much of it in cooperation with U.S. Fish and Wildlife Service.

I discussed our experience with one pound of DDT in a gallon of oil per acre in the beet leafhopper project carried on in the western side of the San Joaquin Valley for the last few years. In reviewing this program, it was interesting to note that there have been no proved cases of poisoning due to the DDT spray applied over pasture land. There have been very few complaints, and each of these has been investigated thoroughly.

Whenever it was found that sheep had been reported to be dying in the area treated, the difficulty was found to be due to a disease or poison weed, or some other cause not related to the pesticide spraying.

Lack of Understanding

I was surprised to find how scanty the courtroom attendance was, as I had thought there was more public interest in the trial, which was held in the Borough Hall in Brooklyn. After I had completed my testimony and was leaving the courtroom, several women, evidently connected with the case, questioned me. They seemed to believe sincerely that they had been damaged from the use of this spray, and showed a lack of understanding of the safety factors involved in the use of small amounts of DDT in the gypsy moth program.

When the trial closed on March 4, the plaintiffs were allowed three weeks to prepare briefs supporting their arguments, and the defense was allowed an additional two weeks to file answering briefs.

It was my impression from talking

to various people interested that the so-called organic gardeners were trying to prevent the use of any pesticides, and were attacking the gypsy moth program for this reason. Also, there seems to be a belief that the same group will attempt to prevent a program to eradicate the fire ant from being carried out. Although this group is apparently not very numerous, it is well organized, and is doing everything it can to make people believe that the use of all chemicals is hazardous, and should be stopped.

"Pure" Food Advertised

Last week I received in the mail from one of the stores attempting to supply foods for the organic gardening group a circular which reads as follows:

"Organically grown, unsprayed fruits and vegetables will be in our store this Thursday, May 21, and every Thursday thereafter! We have been striving for this for some time, and it is a dream come true to be able to add this service to our community. But, in order for us to maintain this service, we ask that all of you who are interested, to back this venture to the fullest!

"Would you, after preparing your salads and vegetable dishes, spray them with insecticides before serving them to your family? Of course not! Yet that is, in effect, what you do when you buy today's produce! Now you can protect your family's health and safeguard them against hazardous, modern day spraying with our spray-free produce! Buy these precious vegetables from our store.

"We also carry strictly fresh, fertile eggs produced from hens fed mash free from chemical additives; fresh churned butter from raw cream, when available, and raw milk cheese. We will soon be adding raw goat's cheese to our stock.

"In order that we may all have more abundant health, we ask your support for our program to expand our supply of wholesome, natural foods."

You will note that this circular or offer to supply organically grown, unsprayed fruits and vegetables implies that all other fruits and vegetables carry dangerous poisons. This implication is obviously false, as we have laws forbidding sale of produce carrying excessive residue, and these laws are strictly enforced. Sprays are applied to growing fruits and vegetables for control of pests with adequate time allowed between application and harvest for the sprays to break down to innocuous products. This is not the same as spraying food as it is being served to eat. The ordinary washing and handling or preparing food for the table also helps to remove any residues that may remain.

The U.S. Food and Drug Administration and many health authorities are quite concerned over the propaganda against chemicals. A great effort has been made to administer the laws, both federal and state, pertaining to proper labeling of pesticides so that the directions will provide for proper use without causing excessive spray residues. The Food and Drug Administration has established tolerances for many chemicals on

many crops, all with the intent of safeguarding the health of our people. When any group tries to oppose this program by encouraging the public to buy a restricted list of foods, or to avoid many of our good nourishing foods, the strength and health of our nation may be affected from the nutrition standpoint much more seriously than it would be affected by chemicals, even if the previously mentioned controls were not in effect.

Another group is attempting to prevent the use of highly toxic chemicals in rodent control. Its main attack is the use of sodium fluoroacetate, otherwise known as "Compound 1080," as a rodent poison. We all recognize that sodium fluoroacetate is a highly toxic compound, requiring the utmost care in handling to prevent injury to man or wildlife. At the suggestion of the Department, Section 1080.6 of the California Agricultural Code was added by the statutes of 1953 and it provides that it is unlawful for any person to sell, use, or possess any sodium fluoroacetate or any preparation thereof, except subject to rules and regulations of the director.

The law provides that certain specific classes of people are authorized to use it for pest control purposes. These include federal, state, county, and municipal officers or their employees in their official capacities, and duly licensed structural pest control operators.

The Department has issued rules and regulations governing the use of this material, and further instructions have been issued to County Agricultural Commissioners with regard to precautions that should be taken in handling baits containing sodium fluoroacetate. The material is very effective, and when properly handled with adequate supervision of qualified people, provides a tool for doing a better job than many of the other poisons which may require larger quantities, with resultant possibility of increased hazard.

The main difficulty with the use of sodium fluoroacetate is that dogs are particularly susceptible to it; in fact, the quantity required to kill a dog is many times less than that required to kill a rodent in proportion to the animal's body weight. This extreme susceptibility of dogs, generally regarded as man's best friend, has made dog lovers particularly incensed at the idea of using this valuable chemical. There is a campaign further to restrict or banish the use of this toxic substance.

More Scare Propaganda

There has come to my attention a circular, entitled "More about the Dangers and Harm of the Poison Programs." In this circular the instructions and warnings with regard to the precautions necessary to prevent hazard from use of the chemical are quoted as grounds for banning its use. No recognition is given to the fact that the chemical is not permitted by law to be possessed by the public generally in California, and that the official agencies have attempted to use the material with due care to prevent injury.

This circular also makes reference to the 1955 poisoning of deer as the result of use of treated grain for rodent control. The deer die-off in Stanislaus County was carefully investigated at that time by the State Department of Fish and Game and the State Department of Agriculture, and it was determined that the deer die-off was not due to treated grain, but rather due to a food shortage. The deer were out of balance with their food supply, and consumed Mexican milkweed.

Most of the opposition to governmental pest control programs is aroused by increasing fears for personal safety, or by fears of unknown dangers to wildlife. There is excellent public cooperation on projects that are clearly understood and do not arouse fears of the unknown. The Meyer lemon plant removal program is an example of such a project.

*Presented before annual meeting of the State Association of Agricultural Commissioners at Hoberg's Resort, Cal., June 2-5, 1958.

There is no chemical control for quick decline of citrus; no heroic measures must be taken. Meyer lemon plants are symptomless carriers of quick decline of citrus.

In order to protect commercial citrus plantings, you may recall that special legislation was passed to authorize removal of Meyer lemon plants from commercial citrus areas, and that these areas are established by regulation. The program has progressed very satisfactorily. The Commissioners and Department personnel who worked on this Meyer lemon removal program should be complimented on the excellence of their work. By the middle of May 1958, 4,615 Meyer lemon plants have been removed out of the 4,774 found within the Meyer lemon free areas. At present, the areas in Glenn, Kern, Tehama, and Yuba Counties are free of Meyer lemon plants. Work is in progress in Butte, Fresno, and Tulare Counties.

There have been some interesting incidents in this program, such as the case of the man eighty years old who had to have Meyer lemon juice for his health, and couldn't possibly have his tree removed. One of two people have questioned the constitutionality of the law, and we may yet have to go to court to get the last Meyer lemon tree out of the areas involved, as there is usually someone who feels it important to stand upon his constitutional rights.

When called upon to remove Meyer lemon plants, the average citizen asks the inspector why he is there, and wants to know what good it will do him to have the Meyer lemon plant removed. Then he wants to know why he isn't being paid for the loss of his plant. When this is all explained, he will usually agree to go along with the program without further argument.

It seems to me that it would be a difficult task indeed to find a person who has not benefited in some way from the proper use of modern agricultural chemicals. Despite the fine public relations work carried on by the U.S. Department of Agriculture and the various agricultural chemicals associations and industry concerns, I believe there are many people who are unaware that they have benefited from the use of pesticides and other agricultural chemicals. The millions of uninformed persons can be convinced rather easily that their property, their health, or even their very lives have been placed in jeopardy by the growing use of chemicals or poisons. They offer an opportunity for those interested in continuing or extending the misunderstanding to carry on their program for their own selfish ends.

We all should use every opportunity to correct these misunderstandings, and to carry the story forward that pesticidal chemicals are probably the most regulated class of materials sold in this country, and that all precautions and efforts are taken to see that they are properly used for man's benefit.

People close to the problem of a certain type of pest control are apt to take for granted that all people affected by the control measures are fully aware of the need for the control, and that they fully understand the control measures that are to be taken. This can be a fatal error. The business man, the farmer, the housewife—all who may be affected by control procedures should be made aware and fully informed of basic need for the procedures. Insofar as possible, they should be told of the benefits that the program means to them or to their neighbors and community.

We have all condemned the shortsighted attitude of the few manufacturers of pesticides who spend a million dollars for advertising and not one cent for research. But governmental pest control program administrators can be just as shortsighted if they too overlook the necessity of spending part of their time and their budget on educating people on the

need and conduct of the procedures.

Imperial County's beet leafhopper program last year is an excellent example of public response to a well-advertised and understood program. Whenever I hear of people telephoning the mosquito abatement district and requesting that their neighborhood be fogged or sprayed, I am impressed with the cooperation governmental agencies can get if the public knows what they are doing and why they are doing it.

Booklets Available

BERKELEY, CAL.—Three publications of interest to the agricultural chemical industry have been released for distribution by the division of Agricultural Sciences of the University of California.

These are Grape Rootstocks for the Coastal Valleys of California, by Lloyd A. Lider, leaflet 101; The Observation of Hive, by J. E. Eckert, leaflet 102; and Termite Control, by Walter Ebeling, and Roy J. Pence, Circular 469. Single copies may be obtained without charge by writing Agricultural Publications, 22 Gianini Hall, University of California, Berkeley 4, Cal.

Fall Application of Phosphate Fertilizer Recommended in Colorado Spring Crops

FT. COLLINS, COLO.—Fall application of phosphate fertilizer for crops planted early in the spring and which require good seed bed preparation are generally recommended in the state of Colorado according to W. R. Schmehl, agronomist at Colorado State University, Ft. Collins. Sugar beets is the best example of such a crop, Mr. Schmehl says. Frequently, where land for sugar beets is spring plowed, the seed bed can not be properly prepared for early planting. Consequently, planting is sometimes delayed.

Experimental results have shown that fall plow down of phosphate fertilizer is as good as spring applications. Consequently this represents an excellent place for fall application of fertilizer under Colorado conditions.

Fall application of phosphate should also be successful where this nutrient is needed, for pastures, meadows, and established stands of alfalfa.

Mr. Schmehl indicates that recom-

mendations for fall application for nitrogen fertilizer are given somewhat more reluctantly, although fall and winter moisture is generally low.

Occasionally, he says, there may be some leaching of nitrogen because of early spring rains or where irrigation water is applied in early spring. Under most Colorado conditions, no early spring irrigation water is applied, fall application of nitrogen should cause no losses in this nutrient. Where a mixed fertilizer is plowed down, this is an important consideration.

When it comes to the application of nitrogen only, Mr. Schmehl says that he would prefer to wait until spring.

Potash fertilization is infrequent in Colorado, he adds, and if used is generally applied for vegetable crops in band at planting.

Nematodes Show Strong Radiation Resistance

WASHINGTON—Nematodes are unexpectedly resistant to radiation, tests by U.S. Department of Agriculture scientists reveal.

The golden nematode can withstand radiation up to 20,000 roentgens before the females are sterilized. (A roentgen is a standard unit of radioactivity.) It takes 120,000 roentgens or more to kill this plant parasite. Some other kinds of nematodes require between 350,000 and 640,000 roentgens for a lethal dose.

By comparison, the dosage considered invariably lethal to man is 650 roentgens. Some human fatalities may occur from exposures of as little as 300 roentgens.

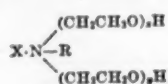
Since nematode-killing doses of radiation will injure plants, there is no prospect that radiation can be used for killing the pests on living plants. Scientists hoped that nursery stock now being quarantined to prevent the spread of plant-parasitic nematodes to non-infested areas could be freed of the pests by exposing them to radiation.

Experiments were started two years ago in USDA's Nematology Laboratory at Beltsville, Md., and at the Brookhaven National Laboratory on Long Island, N.Y., to find whether rays from radioactive materials could be used to destroy nematodes on soil and on plant material.

Industry Patents and Trademarks

2,843,471

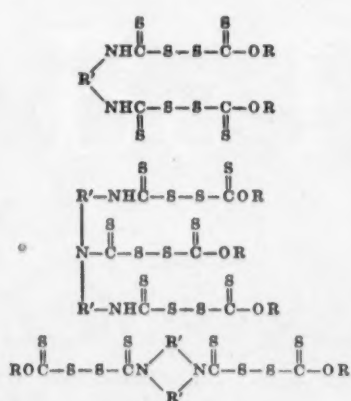
Herbicidal Compositions of Controlled Water Solubility. Patent issued July 15, 1958, to Elias Fischer, Chicago, assignor to Armour & Co., Chicago. An herbicidal compound having the formula:



wherein X is an herbicidal plant hormone carboxylic acid, R is a radical selected from the group consisting of straight-chain aliphatic hydrocarbon radicals having from 8 to 22 carbon atoms and an abietyl radical, and x and y are integers, the sum of which is from 2 to 50.

2,843,518

Fungicides and Fungicidal Compositions. Patent issued July 15, 1958, to Joseph A. Lambrecht, Charleston, and William H. Hensley, St. Albans, W. Va., assignors to Union Carbide Corp. As new compositions of matter, compounds of the formulae:



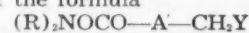
and



where R is a member of the group consisting of mono cyclic and alkyl groups containing from 1 to 8, inclusive, carbon atoms; R' is an alkylene group containing up to 6, inclusive, carbon atoms; and "m" and "n," respectively, is an integer from 0 to 4, inclusive, and the sum of "m+n" is at least 2. A fungicidal composition containing from .005 to 50 parts by weight of a compound defined in claim 1 with sufficient added material to make 100 parts by weight.

2,843,519

Pesticidal Compositions Comprising Dimethyl Carbamates of Dimethyl Amino and Hetero-Substituted Methyl Phenols and Method of Using Same. Patent issued July 15, 1958, to Howard M. Fitch, New York. A pesticidal composition comprising a toxicant of the formula



wherein R is a methyl group, A is selected from the group consisting of phenyl, lower alkyl substituted phenyl, nitrophenyl and chlorophenyl, and Y is selected from the group consisting of dimethylamino, N-piperidino, N-morpholino and N-pyrrolidino, and a non-phytotoxic carrier substance.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

Vanguard, in caps and lower case, for fungicides and bactericides. Filed Oct. 17, 1957, by R. T. Vanderbilt Co., New York. First use Oct. 7, 1957.

Sponge Rok, in hand-lettered capitals, for inorganic soil amendment. Filed Aug. 23, 1956, by Paramount Perlite Co., Paramount, Cal., from Perlites, Inc., Paramount, Cal. First use Oct. 18, 1948.

MCM in heavy capital letters, for bacterial soil conditioner. Filed Sept. 26, 1957, by Hyper-Humus Co., Bryn Mawr, Pa. First use Aug. 26, 1957.

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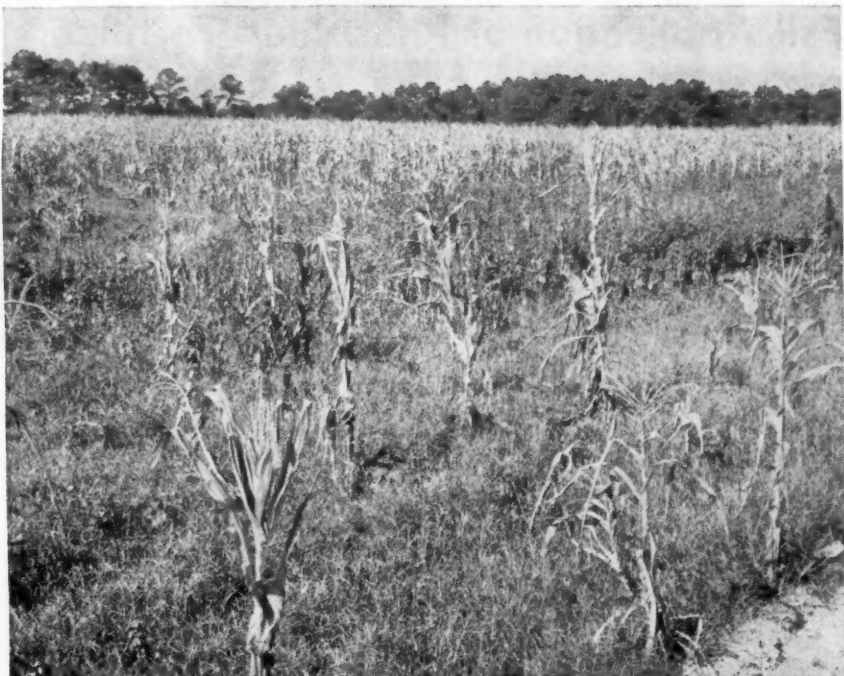
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BILLBUG DAMAGE ON DISPLAY—The obvious reduction of stand and yield in this South Carolina field of corn was caused through the depredations of billbugs. Dr. Vernon M. Kirk, entomologist at the Clemson, S.C., Agricultural Experiment Station, reported at the recent 7th annual Clemson pesticide school that preplant treatments of aldrin wettable powder will control the billbug and allow undamaged stands of corn and much greater yields.

New Disease Hits Washington Barley

PULLMAN, WASH.—Yellow dwarf virus, a perennial disease of spring oats and barley in western Washington, has crossed the Cascades this year to hit Palouse fields hard. Dr. G. W. Breuhl, Washington State College plant pathologist, reported widespread infection by the virus of spring-planted grain in many east-side fields. Degree of infection varies from farm to farm.

Crop damage ranges from a total loss in some spring-barley fields to barely significant lowered yields in others, Dr. Breuhl said. He explained that yellow dwarf regularly takes about a 25% toll of spring-planted

oats in western Washington State.

One 450-acre field of spring barley near Pullman did not get large enough to produce heads. The crop is a total loss, Dr. Breuhl said. However, a field of barley planted the same day on an adjoining farm showed a little yellow dwarf damage and will produce almost a normal crop.

The WSC plant pathologist attributed the extensive infection in eastern Washington this year to favorable conditions for early aphid spread. "As far as we know, all aphids that feed on grasses can transmit yellow dwarf virus," he added.

WSC entomologists say that early spraying of spring grain, especially spring barley, showing a heavy aphid infestation may offer a possible method of controlling the disease.

NAC

(Continued from page 1)

and Stephen G. Pugh, Southern Bell Telephone & Telegraph Co., Atlanta.

Jackson V. Vernon, vice president chemical divisions, Food Machinery and Chemical Corp., New York, NAC president, will present his address on the opening morning.

Mr. Gillis' topic as announced in the program will be "Confusion Out of Chaos," while Mr. Conner will discuss "Product Liability Claims and Suits."

Another panel discussion on new and expanding markets will occupy the final period of the last day's program. The following topics and speakers have been announced by the NAC: Wilbur J. Garmhausen, chief landscape architect of the Ohio department of highways, Columbus, on "Roadsides"; Dr. Herbert L. Haller, assistant to the administrator, Production Research, Agricultural Research Service, U.S. Department of Agriculture, Washington, "Soil Fumigation"; William Johnson, chief research forester, Union Bag and Paper Co., Savannah, Ga., "Forests," and M. W. Melander, manager, export division, Stauffer Chemical Co., New York, "Export Horizons."

Association committee meetings will be held at various times during the three-day convention, and a golf tournament will headline the sports activities.

A reception is scheduled for the evening of Oct. 29, and a barbecue dinner, with entertainment, for the evening of the 30th, according to the announcement.

THOMAS

(Continued from page 1)

cultural colleges and experiment stations. The committee authorized Dr. Thomas to name a special committee to serve as a work group on these projects, cooperating with the re-

search men at the various colleges.

Dr. S. L. Aldrich, University of Illinois extension agronomist, discussed with the committee an idea for a proposed study of the degree and source of segregation in bulk spreading of fertilizer.

The committee authorized the chairman to appoint two other special work groups from its membership. Their functions will be, respectively: (1) To study possibility of a pilot soil testing project in the Midwest region. The project's purpose would be to encourage soil testing and also, to use the project to measure the effectiveness of soil testing as a tool for merchandising fertilizer, (2) To study fertilizer demonstration programs and determine the effectiveness of demonstrations as a means of merchandising fertilizer.

Attending the meeting, in addition to Mr. Allstetter and Mr. Beers, were W. T. Dible, International Minerals & Chemical Corp.; Dale Friday, Nitrogen Division, Allied Chemical Corp.; Proctor Gull, Spencer Chemical Co.; Hartl Lucks, Smith Agricultural Chemical Co.; Werner Nelson, American Potash Institute; Leo E. Orth; Leonard Schrader, Standard Oil Co.; C. L. W. Swanson, The Texas Co.; Dr. Thomas; and H. H. Tucker, Sohio Chemical Co.

Arlan Woltemath, newly appointed NPFI Midwest district representative, who recently assumed his duties at Kansas City, Mo., to cover Iowa, Kansas, Missouri and Nebraska, also attended the meeting.

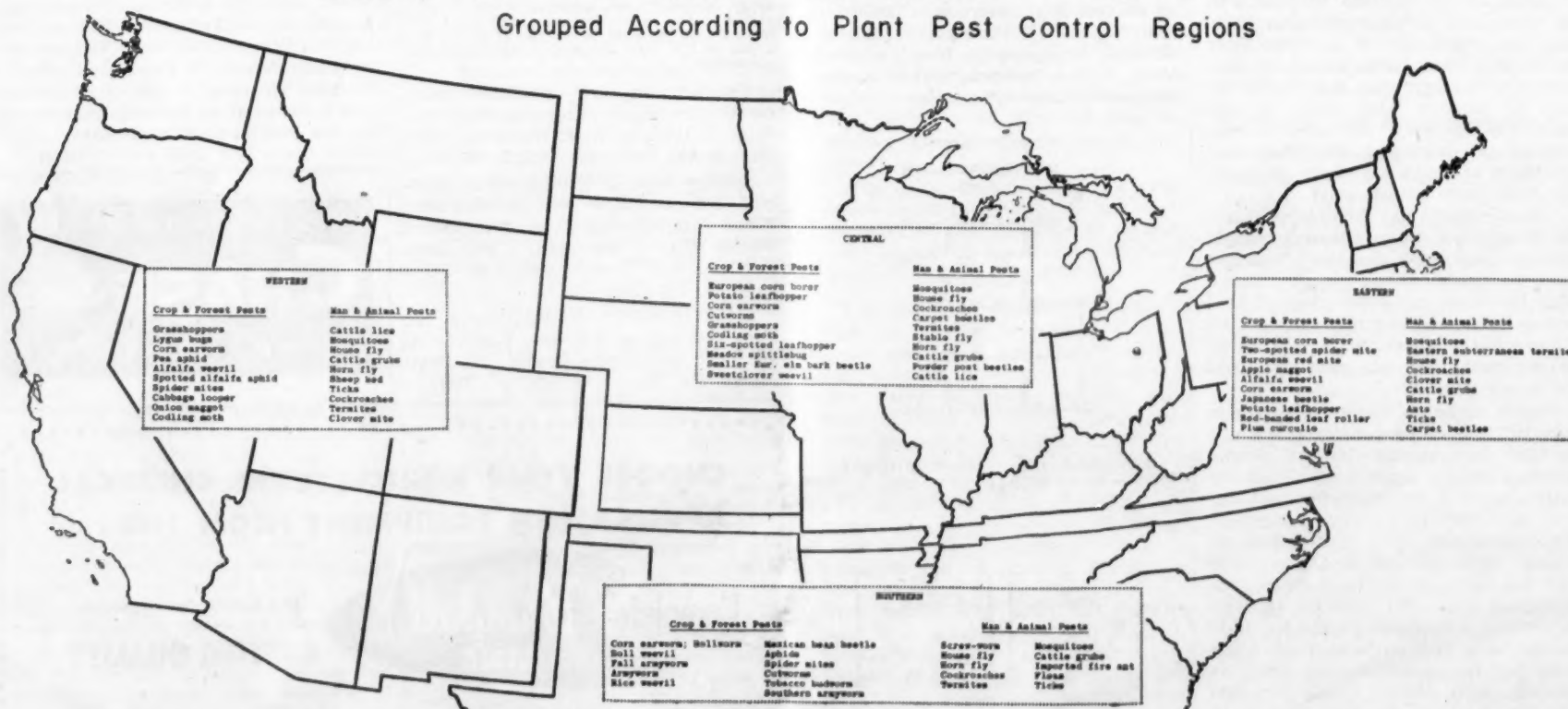
A report of the committee's actions and suggested program was presented before the meeting of NPFI's Midwest Industry Advisory Committee in Chicago on July 22.

PILOT KILLED

PECOS, TEXAS—John William Martin, 37, of San Angelo, a pilot for the Alvin Miller Dusting Co. of San Angelo, was killed when his plane crashed on a farm near here. It failed to complete a turn. It did not catch fire. He is survived by his widow and three children.

SOME OF THE MORE IMPORTANT PESTS — 1957

Grouped According to Plant Pest Control Regions



WHERE PESTS ABOUNDED IN 1957—The above map, prepared by U.S. Department of Agriculture entomologists, shows where the important insect pests of last year were located in the largest numbers. Significance of this lies in the fact that a similar pattern may exist during the current season. In the Western Region, crop and forest pests listed included grasshoppers, lygus bugs, corn earworm, pea aphid, alfalfa weevil, spotted alfalfa aphid, spider mite, cabbage looper, onion maggot and codling moth. The list of insects affecting livestock and man included cattle lice, cattle grubs, horn flies, sheep ked, ticks, termites and clover mites.

The central area's pests included the European corn borer, potato leafhopper, corn earworm, cutworms, grasshoppers, codling moth, six-spotted leafhopper, meadow spittlebug, sweetclover weevil, plus stable flies, horn

flies, cattle grubs, powder post beetles, and cattle lice.

The Southern region suffered from corn earworm, bollworm, boll weevil, fall armyworm, armyworm, rice weevil, Mexican bean beetle, aphids, spider mites, cutworms, tobacco budworm, Southern armyworm, screw-worm, horn fly, cattle grubs, imported fire ant, fleas and ticks.

Eastern regional pests included the European corn borer, two-spotted spider mite, European red mite, apple maggot, alfalfa weevil, corn earworm, Japanese beetle, potato leafhopper, red-banded leaf roller, pine curculio, clover mites, cattle grubs, horn flies, and carpenter beetles.

All regions listed mosquitoes, cockroaches, and house flies as important pests of 1957.

Agronomists to Hear About New Fertilizer Application Ideas

LAFAYETTE, IND.—New ideas on how to apply farm fertilizers will highlight a special program at Purdue University Aug. 4, opening day of the American Society of Agronomy annual meeting.

Fertilizer specialists from several Midwest agricultural colleges will discuss new developments and inspect corn and small grain plots at the Purdue Agronomy farm. Various application methods were used on the plots, planted especially for the agronomist's meeting.

Some 1,600 members of the Society are expected to attend the meeting, which ends Aug. 8.

B. A. Krantz, University of California soil scientist and vice chairman of the National Joint Committee on Fertilizer Application, will conduct the morning session. W. L. Nelson, Lafayette, agronomist with the American Potash Institute, and A. J. Ohlrogge, Purdue agronomist, will take part. Other participants are R. L. Cook and M. B. Tesar, Michigan State University; George Enfield and Richard F. Dudley, U.S. Department of Agriculture, Washington, D.C.; J. L. Parsons, Ohio Agricultural Experiment Station, Wooster, and J. A. Jacobs, University of Illinois.

Several Indiana farm implement dealers in cooperation with the Purdue agricultural engineering department will display fertilizer equipment at the agronomy farm.

May Ammonia Production Up From April Output

WASHINGTON—Production of anhydrous ammonia for May exceeded that of April by 18,321 tons, according to preliminary figures just released by the Bureau of the Census, Department of Commerce. May's output was 348,159 tons as compared to 329,837 tons for the previous month.

Production of ammonium nitrate, however, was down considerably. The May output, according to the figures, was 186,417 tons as compared to 231,228 tons for April. Significantly, however, stocks at producing plants had been high in April (237,164 tons) and were reduced to 182,677 tons in May.

Phosphoric acid production was down only slightly in May, the tonnages being 153,250 tons for May and 157,076 for April.

Sulfuric acid output was up slightly in May over April. The figures were 1,309,774 tons and 1,296,892 tons, respectively.

Production of nitric acid was down from 235,477 tons in April to 210,050 tons in May.

These figures, according to the Department of Commerce, are of preliminary nature. Detailed reports for these chemicals together with data for additional chemicals and gases will appear shortly in the department's report, "Facts for Industry."

Tests Show Cows Not Susceptible to Normal Amounts of Weed Killer

MIDLAND, MICH.—A study to determine how serious is the danger of livestock being poisoned by grazing on vegetation sprayed with weed or brush control chemicals has been conducted by the veterinary research section of Dow Chemical Company.

Working with a mixture of 2,4-D and 2,4,5-T, Dow researchers found that a 1,000 lb. cow would have to consume 25 gal. of spray solution mixed at four pounds of herbicide in 100 gal. water in order to show any symptoms of intoxication. This would be enough spray to cover 10,890 sq. ft. of land at recommended rates.

Using a spray concentration of a quarter pound per 100 gal. water, the cow would have to take in 400 gal.—all the material which would normally be sprayed over 174,240 sq. ft.

All of these dosages caused only temporary sickness. Lethal doses are higher; in fact, death resulted only once in the course of Dow's testing. In this case a 650 lb. steer was fed 10.3 oz. of a mixture of 2,4-D and 2,4,5-T daily for three days. On the third day the animal became sick and died three days later. Enough herbicide chemical was involved to clear a half acre of heavily covered brush land.

Attempts to determine the lethal dose of dalapon in cattle failed. Three and a half pounds of dalapon were "pumped" into a steer at one time. In another instance, five and a half pounds were fed to a steer over a 10 day period and a comparable dose on a weight basis was given to a suckling calf. The worst reaction was a digestive upset. Re-

searchers finally gave up trying to kill cattle with dalapon.

Studies also delved into the possibility of increasing nitrate poisoning cases and the possibility of herbicide applications making poisonous plants more palatable to livestock. Results failed to show any increase in nitrate poisoning hazard following 2,4-D or 2,4,5-T applications. In a number of tests, livestock failed to show a preference for sprayed vegetation over unsprayed.

On a pound for pound basis, animals of various sizes showed about the same reaction to herbicide dosages. Any variation would probably go in favor of larger animals.

In summing up results, Dow researchers concluded that dalapon does not constitute a hazard on farms. Likewise, there is no practical hazard in the use of 2,4-D and 2,4,5-T. "If these compounds are used according to directions, there is a wide margin of safety," company spokesmen said.

Arkansas Fertilizer Sales Show Decline

LITTLE ROCK—Arkansas fertilizer sales during the fiscal year ended last June 30 totaled 289,641 tons, compared with 325,150 tons during the 1956-57 fiscal year.

Sales of materials in 1957-58 dropped to 149,853 tons from 184,290 tons in the previous fiscal year, while sales of mixed grades held fairly steady at 139,788, compared with 140,860 in 1956-57.

Included in the 1957-58 material sales were 41,737 tons of ammonium nitrate, 25,404 tons of nitrate of soda, 21,373 tons of anhydrous ammonia, 7,634 tons of nitrogen solutions, 7,322 tons of urea, 8,717 tons of triple superphosphate, 4,439 tons of 20% superphosphate and 23,407 tons of muriate of potash.

Leading mixed grades were 5-10-5 with 30,375 tons and 10-20-10 with 22,976 tons.

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Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

Senator Gives Pesticide Industry Commendation

A NEW and welcome twist in the manner in which the pesticide industry in general and the National Agricultural Chemicals Assn. in particular are mentioned by high-level lawmakers, is seen in the remarks of Sen. Alexander Wiley, (R., Wis.) which appeared in the Congressional Record of July 17. Mr. Wiley called the attention of his colleagues to the "chemical revolution in American agriculture," and said that not many people realize their debt to chemistry. Not only the farmer benefits, he said, but the public as a whole "is deeply indebted to the miracles which have been wrought by chemical compounds as applied to agriculture."

These products, he went on, have meant bigger crops with less toil, better livestock, and healthier Americans. "And the benefits of the chemical revolution in America have spread throughout the world as well," he added.

Insecticides and fungicides, rodenticides and herbicides, he said, have changed the life of every one of us for the better. "It is estimated that pests continue to cost the American economy no less than \$9 billion a year," he said, and reminded further that this sum comes out of the pocket not only of the farmer, but of the public's pocket as well. Insects cost us \$4 billion and rodents another billion, with weeds taking a toll of up to \$4 billion annually.

Hitting at those who complain about bigger crops and the complications they bring, the Senator said "We do not shrink from meeting our problems. The fact that American population is expanding by 3 million a year means that we may have a housing problem, but that does not result in our desiring less population."

"On the contrary, we welcome the increased productivity of the American farmer; just as we welcome the increased population which will be fed by the American farmer."

The chemical industry came in for a pat on the back by the Senator, and the agricultural chemical industry as well. He commended its research efforts and quoted the May issue of the "NAC News" that pesticide manufacturers are spending more than \$20 million a year on research and development; a jump of 150% over the 1950 figures.

Although the Federal government is spending some \$5 million for research in this field, still this is basically a private enterprise industry, he said. Some 93% of crop protectants come from industrial research rather than from that of tax-supported institutions.

"Last year, a quarter of a billion dollars represented the value of pesticides at the manufacturer's level," the Senator reported. He then added that he is interested in the subject because his having come from a farm state enables him to know how valuable is chemical research in meeting agricultural problems in Wisconsin.

"But I am interested as well in the health of all of American agriculture and, far more important, the health of the American people as a whole."

"I am interested that the farm industry shall receive maximum encouragement to break new trails in research."

"I am interested in ever-improved safety standards—a subject in which the industry, itself, is deeply interested, as well."

"I know that research pays off in countless direct and indirect ways; that for every dollar so invested, the public will receive untold benefits."

"The world's population is increasing and must be fed. America's population is increasing, and it wants to be fed better than ever before."

"I send, then, to the National Agricultural Chemicals Association congratulations on their 25th milestone and my wishes for uninterrupted success in continuing to serve the needs of America."

"I send to the desk the text of a most interesting chart which was published in that same May, 1958, issue of the NAC News and Pesticide Review. It is entitled 'Twenty-five Years of Miracles,' and it shows in simplified, tabular form, what has been accomplished in these brief 2½ decades in major pesticide chemical work."

"I ask unanimous consent that this page be printed in the Appendix of the Record."

There being no objection, the chart was ordered to be printed in the Record, as follows:

Twenty-five Years of Miracles Major Pesticide Chemical Developments

Improvements in older pesticides: botanicals, inorganics.

Synthetic organic herbicides, 1938; hormone-type selective herbicides, 1945.

Synthetic organic fungicides, 1940.

Synthetic organic insecticides: chlorinated hydrocarbons, 1945; organic phosphates, 1947; systemic insecticides, 1950.

Synthetic organic rodenticides, 1944; anticoagulants, 1948.

Antibiotics for plant use, 1956.

A host of other new inorganic, organic, synthetic, and natural pesticides have been introduced during the past 10 years.

Benefits to Farmers

Net gains of \$4 to nearly \$400 per acre have been recorded by commercial farmers after treating crops for insect, disease or weed control.

In 1956 and 1957 proper use of pesticides saved Florida's multimillion dollar fruit and vegetable crops from huge losses threatened by the Mediterranean fruit fly. Other examples: Small grain farmers in the Southwest used pesticides to save nearly \$4 million worth of crop during a greenbug epidemic in 1950. Midwest farmers save from \$30 million to \$50 million a year through chemical control of grasshoppers.

Chemical weeding cuts cultivating costs nearly in half. Chemical weeding of cotton, for example, costs about \$9 per acre versus \$15 per acre for hand weeding. That's a potential saving of \$60 million in labor costs for southern cotton growers.

Chemical protection of fresh fruits and vegetables helps to cut losses during transportation and transit estimated by USDA at about \$633 million a year. Insect damage, mold, and bacteria are major factors in these losses.

Benefits to the General Public

United States Public Health Service reports over 5 million lives saved and 100 million illnesses prevented in the United States since 1952 through chemical control of insects which carry such dread diseases as malaria and sleeping sickness.

Foods reaching markets today are free of disease, insects, and rodent contamination as the result of protection made possible by the proper use of pesticides.

United States consumption of vitamin-rich fruits and vegetables is up nearly 100 percent since 1930 owing to greater supplies of these foods, most of which cannot be raised in large commercial quantities without protection from pest destruction.

A natural result of eating more high quality, high vitamin foods, of freedom from disease-carrying insects, and of improved control over poisonous and allergy-causing plants.

Science writers have listed many new pesticide discoveries among the outstanding achievements of modern man. This chart lists some of the major developments of the past 25 years along with an indication of the tangible benefits they have brought to farmers and to the general public.



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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG

Editor

DONALD NETH

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MEETING MEMOS

Aug. 5—Field Day, Colorado State University, San Luis Valley Branch Station, Center, Colo.

Sept. 25—Chemical Industry Safety Workshop; Shamrock Hilton Hotel, Houston, Texas.

Oct. 13—Agricultural Research Institute Panel on Problems Related to Agriculture in the Fertilizer Producing Industry, Academy of Science Bldg., Washington, D.C.

Oct. 16—National Plant Food Institute Conference on Chemical Control Problems; Shoreham Hotel, Washington, D.C.

Meeting Memos listed above are being listed in this department this week for the first time.

July 29-30—Annual Fertilizer Industry Conference Sponsored by the Alabama Polytechnic Institute Experiment Station; Black Belt Substation near Marion Junction, Ala. (July 29) and Prattville, Ala. Experiment Field (July 30).

July 30—Kentucky Fertilizer Conference, Greenville, Ky.

Aug. 4—National Joint Committee on Fertilizer Application, Annual Meeting, Purdue University, Lafayette, Ind.

Aug. 4-8—American Society of Agronomy, Annual Meeting, Purdue University, Lafayette, Ind.

Aug. 12-13—Ohio Pesticide Institute, Summer Field Tour, Ohio Agricultural Experiment Station, Wooster, Ohio, J. D. Wilson, Ohio Agricultural Experiment Station, Wooster, Institute Secretary.

Aug. 12-14—Beltsville Cotton Mechanization Conference, Civic Auditorium, Brownsville, Texas; Sponsored by the National Cotton Council.

Aug. 20-24—Canada Fertilizer Assn. (formerly Plant Food Producers of Eastern Canada), Annual Meeting, Manoir Richelieu, Murray Bay, Quebec.

Sept. 4—Grassland Field Day, Rutgers University Dairy Research Farm, Beemerville, N.J.

Sept. 15-17—Canadian Agricultural Chemicals Assn., Sixth Annual Meeting, Fort Garry Hotel, Winnipeg, Manitoba.

Oct. 14-15—Western Agricultural Chemicals Assn., Annual Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chemical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-21—Fertilizer Section, National Safety Council, annual fall meeting, La Salle Hotel, Chicago, Ill.

Oct. 22-24—Pacific Northwest Plant

Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Oct. 23-29—Northwest Garden Supply Trade Show, Masonic Temple, Portland, Ore.

Oct. 29-31—National Agricultural Chemicals Assn., 25th annual meeting, Bon Air Hotel, Augusta, Ga.

Oct. 30—Annual Southeastern Soil Fertility Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

Nov. 5-7—Fertilizer Industry Round Table, Mayflower Hotel, Washington, D.C.

Nov. 9-11—California Fertilizer Assn., 35th Annual Convention, Ambassador Hotel, Los Angeles, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

Nov. 10-11—Agricultural Aviation Research Conference, Milwaukee.

Nov. 18-20—Washington State Weed Conference, Moses Lake, Wash.

Nov. 24-25—Entomological Society of America, Eastern Branch, Annual Meeting, Lord Baltimore Hotel, Baltimore.

Dec. 1-4—Entomological Society of America, Annual Meeting, Hotel Utah, Salt Lake City.

Dec. 3-4—North Central Weed Control Conference, Netherland Hilton Hotel, Cincinnati.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 9-11—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

Dec. 17-18—Beltsville Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

Jan. 20-22, 1959—California Weed Conference, Santa Barbara, Cal.

July 7-9—Pacific Northwest Plant Food Assn., 10th Annual Regional Fertilizer Conference, Tacoma, Wash.

R. T. Vanderbilt Co. Adds to Specialties Sales Staff

NEW YORK—The R. T. Vanderbilt Co., specialties department, has announced two appointments to its field sales staff.

James Dennis Nolan, of Norwalk, Conn., will cover the mid-western states west of Chicago. He is a graduate of Fairfield University, and attended New York University, specializing in pre-medical studies. He is a veteran of the U.S. Coast Guard.

Thomas M. Kugeman, of Westport, Conn., will cover the mid-western states east of Chicago, and the province of Ontario. He is a graduate of Bates College, where he majored in chemistry.

OREGON

(Continued from page 7)

consumption was rather stable, varying little from year to year in relation to the 1952 tonnage (3,218 tons).

8-24-8 shows the greatest increase in consumption of all the mixed fertilizers during the period studied. 10 tons of 8-24-8 were consumed in 1952, increasing to 651 tons in 1954, 1,360 tons in 1955, 2,055 tons in 1956 and 2,208 tons in 1957. The percentages in relation to the total mixes consumed were increased from 0.04% in 1952 to 7.69% in 1957.

Consumption of 5-10-10 has declined from 1,178 tons, index 100, in 1952, to 373 tons, index 32, in 1957. The percentage consumed in relation to the total mixed fertilizer tonnage dropped from 4.92% in 1952 to 1.30% in 1957.

Consumption of 2,629 tons of 6-20-20 in 1957, more than doubled the 1952 tonnage. The percentage increased steadily from 4.63% in 1952 to 9.16% in 1957.

The United States, unlike Oregon, consumed greater quantities of mixes than simples. The mixes composed about two-thirds of the total fertilizer tonnage from 1952 to 1956.

New Head for Delaware Entomology Department

NEWARK, DEL.—Dr. Dale F. Bray has been appointed chairman of the department of entomology at the University of Delaware, according to an announcement by Dean George M. Worriolow of the school of agriculture.

Born in Paw Paw, Mich., Dr. Bray attended Western Michigan College of Education and Michigan State University before entering the Army in 1943. He did malaria survey work with the medical corps on Guadalcanal and in the Philippines. Later he resumed his study at Michigan

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

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KILL BRUSH at low cost with amazing R-H Brush Rhap. Will not injure grasses, grains, cattle, or other animals. See your dealer, or write Reesor-Hill Corporation, Box 36CL, Jacksonville, Ark.

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FOR SALE — REMAINING SKELETON steel structure and concrete work of our tornado destroyed fertilizer plant at Fargo, N. D. Excellent for construction of suitable warehouse. Plenty of room for industrial expansion on this railroad leased site. Survey this property and make us an offer. Address all correspondence to Ted B. Schultz, Asst. General Manager, Peavey Elevators, 309 Grain Exchange, Minneapolis 15, Minn.

State University where he received his B.S. and M.S. degrees. He came to the University of Delaware in 1949 as a teacher and researcher and received his Ph.D. at Rutgers University in 1954.

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13	14	15	16	17	18	19	10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18
20	21	22	23	24	25	26	17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25
27	28	29	30	31			24	25	26	27	28	29	30	28	29	30					26	27	28	29	30	31	
NOVEMBER							DECEMBER							JANUARY							FEBRUARY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
2	3	4	5	6	7	8	7	8	9	10	11	12	13	4	5	6	7	8	9	10	1	2	3	4	5	6	7
9	10	11	12	13	14	15	14	15	16	17	18	19	20	11	12	13	14	15	16	17	15	16	17	18	19	20	21
16	17	18	19	20	21	22	21	22	23	24	25	26	27	18	19	20	21	22	23	24	22	23	24	25	26	27	28
23	24	25	26	27	28	29	28	29	30	31				25	26	27	28	29	30	31	29	30					
30																											
MARCH							APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9	7	8	9	10	11	12	13
15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16	14	15	16	17	18	19	20
22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23	21	22	23	24	25	26	27
29	30	31					26	27	28	29	30			24	25	26	27	28	29	30	28	29	30				

How Hercules Helps Promote Sound Insecticide Usage

In advertising messages prepared for the cotton grower, Hercules tries to answer the questions asked most frequently about cotton insecticides and their use. Direct mail, TV and radio advertising, and dealer aids all stress the benefits the farmer can expect from a complete insect control program based on the correct use of toxaphene formulations.

Such messages also direct the grower to his dealer for a copy of a remarkable new booklet, "A Practical Cotton Insect Control Program." If you do not already have a supply of these booklets for your customers, contact your nearest Hercules Powder Company representative, or write direct to Wilmington.

Questions and Answers About Cotton Insecticide Usage

Q Why do some growers harvest high-grade cotton early while their neighbors are still battling late-season boll weevils?

High quality fiber usually comes from early cotton. Growers who strive for early production start an insect control program early to get the crop off to a fast start. Carefully-timed insecticide applications all through the season protect the crop, speed it toward maturity, and keep insect populations low.

Q How many applications do they make during the early season?

A study of the most successful growers shows they make two applications early for thrips, three more applications between the time first squares form and the time cotton reaches the first bloom stage. These treatments not only control thrips, fleahoppers and plant bugs, but strike at the overwintered weevils before females can lay their eggs.

Q What about late-season applications?

In some areas, after the first bloom appears, top growers start additional applications when weevil counts reach 10 per cent, continue applications every five days until infestations are below the 10 per cent level. In other areas, the early program alone can be adequate. The number of late-season applications needed depends a lot on the weather.

Q Doesn't this cost a lot more than a late-season program only?

No. Applications early in the season are relatively inexpensive. They more than pay their cost by eliminating some of the late-season treatments which require higher dosages to cover the larger plants. Cotton treated with only late-season applications usually has to set fruit when boll weevils and other insects are at their peak.

Q Where can I get more information about a complete cotton insect control program?

See your dealer for your free copy of the new booklet "A Practical Cotton Insect Control Program." If he can't supply you, write to the address below, giving your dealer's name and address. We will send you your book, and furnish him copies for other growers in your community interested in such a program.



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